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Commissioner

June 24, 2005

Paul Wintrob
US EPA New England
One Congress Street
Suite 1101 – CMA
Boston, MA 02114

Dear Paul:

Enclosed please find the *Final Progress Report* for the *MA DEP/US EPA Region I Environmental Performance Partnership Agreement: 2004.*

In this year-end progress report, DEP continues to incorporate a Trend Analysis for each of the eleven environmental protection goals included in the 2002-2003 PPA. This year's report includes data from 2004, 2003 and 2002. Each Trend Analysis section provides a brief assessment of trends in selected environmental indicators. The indicators have been selected to highlight the success of programs, to demonstrate our success in moving toward our overall environmental goals, and in some cases to highlight program areas that may benefit from further evaluation.

If you have any questions or comments regarding this report, please feel free to contact me.

Sincerely,

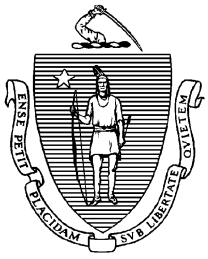
Arleen O'Donnell
Deputy Commissioner
Policy and Planning

Cc: J Colman
G Haas
D Chalpin
D Fine
A Law-Floode

The Environmental Performance Partnership Agreement:

Final Progress Report on the Federal Fiscal Year 2004 Performance Partnership Agreement 10/01/2003 – 9/30/2004

Massachusetts Department of Environmental Protection
June 2005



This information is available in alternate format by calling our ADA Coordinator at (617) 574-6872.

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Introduction

What is this report?

This is a report on the progress made in federal fiscal year 2004 (October 1, 2003-September 30, 2004) towards the environmental goals and milestones included in the *Environmental Performance Partnership Agreement: 2004* between the Massachusetts Department of Environmental Protection and the Environmental Protection Agency New England. The *Agreement* was developed as part of the National Environmental Performance Partnership System.

What is the context for this report?

The National Environmental Performance Partnership System (NEPPS) was designed to establish a new approach to the federal-state relationship in environmental protection. Its intent was to develop a system that was based upon environmental goals and measures of success and allowed states maximum operating flexibility to accomplish their environmental priorities. It also promised less federal oversight of state programs that have demonstrated strong performance and capability.

Key features of this system include:

- Environmental Performance Partnership Agreements and Grants that replaced traditional media-specific grants, and
- Increased use of environmental goals and indicators.

What information does it include?

This report includes some information for the federal fiscal years (FFY) of 2002, 2003 and 2004 and more detailed information for FFY 2004. Information is organized by environmental goal and includes:

- Highlighted activities in FFY 2004
- Environmental indicators and other performance measures reported for FFY 2002, 2003, and 2004,
- Three year trend analysis for each environmental goal, and
- References to other FFY 2004 work products.

This report also includes information on 2002-2004 inspections and enforcement.

Data are collected and organized for 3 different time periods: federal fiscal year (10/1 to 9/30); state fiscal year (7/1 to 6/30); and calendar year (1/1 to 12/31). DEP uses data for the closest possible complete year. DEP has indicated any variation from the federal fiscal year in the report.

What kind of indicators and performance measures are in this report?

This report includes:

- State-specific indicators and measures developed by MA DEP, and
- Core Performance Measures (CPMs) required by EPA.

What are Core Performance Measures?

CPMs are a limited set of national measures, designed to help gauge progress towards protection of the environment and public health. They include a mix of three types of measures needed to understand environmental programs and their effectiveness:

- Environmental indicators (high level trends describing environmental and public health conditions)
- Outcomes (measures of program influence or effect), and
- Outputs (measures of program activities).

The CPMs initially developed in 1998 changed in 1999 and 2000, reflecting a transition in the shift of emphasis to outcome-based measures. A continued joint effort will be needed to bring these measures increasingly closer to an accurate and useful reflection of the most important environmental and program outcomes.

When will the progress in 2004 be reported?

DEP will provide a mid-year update for FFY 2005 (for the dates 10/1/04 through 3/31/05) by July 2005. An annual update for FFY 2005 will be provided by January 2006.

Goal 1: Clean Air - Strategic Priorities

The 2004 Performance Partnership Agreement included Strategic priorities that the Department is pursuing. The following is a summary of progress on those priorities during 2004.

Non-Attainment of the Ozone Standard

FFY 2004 – 2005 Outputs:

- Continue to follow and comment on EPA's proposed 8-hour ozone implementation rule and strategy development
  Status: ongoing
- Submit 2002 emissions inventory for ozone precursors to EPA
  Status: Completed June 2004
- Respond to EPA's April 2004 non- attainment designations and classifications of 8-hour ozone non-attainment areas, as needed
  Status: ongoing
- Work with the Ozone Transport Commission (OTC) states to develop and run an ozone model for the OTC domain to support the 8-hour ozone attainment demonstration SIPs that are due in 2007
  Status: model runs will continue through FY 2005
- Work with OTC to develop NOx and VOC control strategy for the OTC states
  Status: on-going throughout 2005
- Develop MA regulations based on OTC model rules for portable fuel containers, consumer products, and architectural and industrial maintenance coatings (draft rules: 2004, final rule implementation: 2005)
  Status: behind schedule
- Continue to permit, inspect and take appropriate enforcement actions against stationary sources and stage II fuel stations, and implement transportation planning and I&M programs
  Status: issued 250 air quality permits, did 215 air inspections plus an additional 498 multi media inspections, 65 ACEs for air operating permit sources and 46 for RES M80s, 471 CEM report reviews and issued 38 asbestos, 76 air quality plus an addition 28 multi media and 201ERP higher level enforcement actions.
  Continue to work to inform the public of unhealthy air quality and educate the public on steps to take to reduce health risks during unhealthy episodes
  Status: ongoing
- Continue to provide ozone and PM 2.5 data and forecasts
  Status: ongoing

National Presence on Ozone

FFY 2004 – 2005 Outputs

- Actively participate in the Ozone Transport Commission (OTC) to address regional transport issues MA Chairs Modeling Committee, coordinating development and implementation of modeling protocol for attainment SIP; development of CALGRID screening tool; analysis of proposed national air quality legislation and proposed rule-making; Participation in the other OTC Committees
  Status ongoing
- Work with Northeast States for Coordinated Air Use Management (NESCAUM) on regional ozone control strategies and support of Federal rules, policies and strategies that address concerns of the Northeast states
  Status ongoing
- Continue to implement the California Low Emission Vehicle program
  Status ongoing
- Continue to avail ourselves of the legal, political, regulatory and policy options available to us to influence the decisions and actions of EPA and other states that affect the transport of pollution into Massachusetts program
  Status ongoing
- Continue in a leadership role in State and Territorial Air Pollution Program Administrators (STAPPA) (currently Massachusetts is the Mobile Source Chair and will be the Vice President as of Fall of 2004).
  Status ongoing

Goal 1: Clean Air - Strategic Priorities

Inspection and Maintenance (I&M) Program

FFY 2004 – 2005 Outputs:

- Contractor to complete abbreviated (4 key components) equipment audits of all stations by December 2003
- Implement the Onboard Diagnostics emissions test in January 2004
- Convene a blue ribbon panel to review future program directions by January 2004. Recommendations expected by December 2004
- Double staff doing audits of equipment, and provide elevated review of contractor performance
- Improve training of DEP contractors in equipment in equipment audit and maintenance procedures and audit intervention
- Improve training of inspectors doing emission tests
- Improve communication with the stations about the need for prompt equipment repair
- Improve communication with the public about the program including a quarterly report card on equipment reliability
- Work with RMV on improved motorist and station enforcement.

2004 Accomplishments:

- **Major contract amendment completed June 1, 2004**
- **On Board Diagnostics testing implemented June '04**
- **Blue Ribbon panel not initiated due to contract amendment**
- **staff doing audits doubled in December 2004**
- **communication work ongoing**
- **RMV working on motorist and station enforcement**

Diesel

FFY2004 – 2005 Outputs:

- Promulgate and Implement new performance standards for small diesel engines at stationary sources ("distributed generation")
- Continued implementation of heavy duty vehicle emissions I&M program
- Continued implementation of Best Management Practice (BMPs) and require retrofits for landfills, wastewater treatment plants funded by the state revolving loan fund, and construction equipment used on the Central Artery/Third Harbor Tunnel equipment
- Continued effort to prevent truck idling at truck stops and other locations
- Continued work with individual school bus companies, and school bus company trade associations to implement anti-idling programs
- Develop an action plan for further controlling diesel emissions. Plan should be complete during winter of 2004. Strategies under consideration include expanded anti-idling programs, expanded diesel powered vehicle tailpipe I&M program and program enforcement, promoting engine retrofits, promoting the use of ultra low sulfur fuel (ULSF) and tax credits for retrofits and early use of ULSF.
- Participate in the Steering Committee for the Boston Breathes Better Initiative, an effort to increase participation in voluntary transportation programs, such as Best Workplaces for Commuters, diesel retrofits, and the of low sulfur diesel fuel.

2004 Accomplishments:

- **Engine and turbine regulations being finalized**
- **HD IM ongoing as is BMP at landfills and Waste Water Treatment PlantsWT**
- **Idling efforts focused on school buses including an enforcement initiative and driver training**
- **Work on diesel strategy ongoing;**
- **BBB – EOEA participating instead of DEP**

Goal 1: Clean Air - Maintain and Improve Outdoor Air Quality - Atmospheric Changes/Climate Change

Outdoor Air Quality Objectives

- Reduce the emissions of ozone precursors and PM 2.5 and manage emissions of other Criteria Pollutants in Massachusetts (CO, NO2, SO2, PM10, Pb)
- Reduce the transport of ozone and ozone precursors into Massachusetts from out-of state sources
- Decrease the emissions of toxic air pollutants (Dioxin, Mercury, VOCS, HAPS)
- Minimize atmospheric deposition of acid aerosols
- Continue to make progress on regional haze issues

Climate Change Objective

- Minimize Green House Gas Emissions

Outdoor Air Quality Targets

- maintain compliance with the CO, NO2, SO2, PM10 standards
- attain the Ozone 8-hr standard by 2010 and with the 1-hr standard by 2007
- attain the PM 2.5 standards by 2010

- Work to ensure EPA's national air program adequately addresses transport issues

- Continue to reduce air toxics emissions
- Asbestos demolition/renovation compliance rate target to be determined through Beyond ERP
- *For mercury, see Pollution Prevention and Safe Waste Management*

- Reverse damage to lakes and ponds
- Increase level of sustainable forestry

- Source-specific controls in place by 2013 to reduce MA contribution to haze in Class I areas.
- Achieve the regional haze standard by 2064
- Submit the interim 10-year SIP and demonstration of required emissions reductions by the due date to be determined by the EPA. The 10-yr SIP for haze will include required reductions in particulate emissions that could mean further mandatory emissions reductions at facilities.

Climate Change Targets

Green House Gas Emission Goals of the New England Governor's Conference are:

- By 2010: GHG emissions = 1990 emissions
- By 2020: GHG emissions = 90% of 1990
- Eventually reduce regional GHG emissions sufficiently to eliminate any dangerous threat to the climate (75-85%) below 2001 levels

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2004 Highlights in meeting goal

- Continue to comply with CO, NO2, SO2 and PM 10 standards statewide.

- Entire state was determined to be in attainment of the PM 2.5 standard in December 04.

- GHG – MA DEP participating in Regional Greenhouse Gas initiative; leading subcommittee to develop model rule for regional cap and trade program for CO2 for power plants

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Goal 1: Clean Air - Maintain and Improve Outdoor Air Quality - Atmospheric Changes/Climate Change

Environmental Indicators	FFY2002	FFY2003	FFY2004
2002 Trends in air quality for carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, particulate matter, ozone, precursor volatile organic compounds, and oxides of nitrogen concentrations from the air monitoring networks* (calendar years)[1]	➢ **From 2001 to 2002:** **See FFY2003**	**From 2001 to 2002** (*averaged across all monitors available for each pollutant)* ➢ CO average 8-hour 2nd Max. values have declined from 2.6 to 1.9 ppm, well below the standard of 9 ppm. ➢ NO_2 annual average values declined slightly from 0.015 to 0.013 ppm (standard = 0.05 ppm). ➢ SO_2 average annual average levels have not changed from 0.005 ppm (standard = 0.030 ppm). ➢ $PM_{2.5}$ has declined somewhat in annual averages over all sites (12.7 to 11.3 µg/m^3), although the 98th percentiles have increased from 32 to 36 µg/m^3. All monitors are measuring levels below the standard for both the annual and daily standard. ➢ PM_{10} has declined slightly from an annual average of 23 to 21 µg/m^3 (standard = 50 µg/m^3). Individually all monitors are measuring levels well below the standards. ➢ Pb values have been stable at levels well below (<0.1) the standard of 1.5 µg/m^3 ➢ O_3: the number of 1-hour ozone exceedances has fluctuated with no clear trend**.** The average maximum values have remained stable. ➢ O_3: the number of 8-hour ozone exceedances has fallen from 124 to 121; however, there is no clear trend when longer term data is included. The average 4th maximum value has remained stable.(for 2001 and 2002)	**From 2003 to 2004** ➢ CO average 8-hour 2nd Max. values have declined from 1.9 to 1.6 ppm, well below the standard of 9 ppm. ➢ NO_2 annual average values declined slightly from 0.012 to 0.010 ppm (standard = 0.05 ppm). ➢ SO_2 average annual average levels have declined from 0.005 ppm to .004ppm (standard = 0.030 ppm). ➢ $PM_{2.5}$ has remained stable with an annual averageover all sites (11.1 to 11.2 µg/m^3), although the 98th percentiles have declined from 35 to 30 µg/m^3. All monitors are measuring levels below the standard for both the annual and daily standard. ➢ PM_{10} has remained stable with an annual average value of 20. µg/m^3 (standard = 50 µg/m^3). Individually all monitors are measuring levels well below the standards. ➢ Pb values have been stable at levels well below (<0.1) the standard of 1.5 µg/m^3 through 2004. ➢ O_3: the number of 1-hour ozone exceedances has fluctuated with no clear trend**.** The average maximum values have remained stable. ➢ O_3: the number of 8-hour ozone exceedances has fallen from 34 to 19; however, there is no clear trend when longer term data is included. The average 4th maximum value has remained stable.(for 2003 and 2004)

* ECOS Core Performance Measure
[1] When data is not compiled by federal fiscal year, the closest possible complete year is used

Goal 1: Clean Air - Maintain and Improve Outdoor Air Quality - Atmospheric Changes/Climate Change

Environmental Indicators	FFY2002	FFY2003	FFY2004
# and % of Massachusetts residents exposed to air that meets the NAAQS for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (including 2.5), and lead (Pb) (calendar years)	• 6.1 million (100% of MA residents) were exposed to air that meets the standards for NO2, CO, SO2, PM10, Pb. • Ozone standards are based on a 3-year average; there is a 1-hour and 8-hour standard. For the 2001-- - 2003 period, at 10 out of 12 monitors located throughout the state, MA residents were exposed to air the does not meet the 8-hour ozone standard. Residents of Western MA were exposed to air that also does not meet the 1-hour standard during that 3-year period. The rest of the state is in compliance with the 1-hour standard for the 2001-2003 period. • PM2.5 standards are based on a 3-year average. As of the end of calendar year 2003, no monitors in MA violated the annual or daily standards for PM2.5. Previously discontinued monitors had also recorded levels that did not violate the standards by the time of their closure. Therefore, based on available data, MA residents were exposed to air that meets the PM2.5 standards between 2001 and 2003. Due to low data capture, however, most PM2.5 monitors cannot be definitively classified as in attainment of the standards		PM2.5 data capture improved significantly in 2004. The PM2.5 sampling network is undergoing equipment replacement, designed to maintain the higher data capture. In 2004, the latest in a network of seven (7) PM2.5 continuous analyzers was installed in Haverhill. The first analyzer was installed at Roxbury in 2001.
Ozone precursor (VOCs and NO_x concentrations) upwind and downwind of Massachusetts (calendar years)	Data not available –	Data not available	
Wet deposition; acidity of water bodies susceptible to acidification	Data not available	Data not available	
Trends in emissions of toxic air pollutants (TRI supplemented by TURA)*	see waste section	see waste section	see waste section
Air toxics ambient data from the state's special ozone monitoring network and special monitoring studies (calendar years)	➢ In 2001 at the Lynn monitoring site, benzene was at .25 ppbv; toluene was at .5 ppbv; ethyl benzene was at .05 ppbv; xylenes were at .3 ppbv, ➢ In 2001 at the Chicopee monitoring site, benzene was at .3 ppbv; toluene was at .5 ppbv; ethyl benzene was at .1 ppbv; xylenes were at .3 ppbv	➢ In 2002 at the Lynn monitoring site, benzene was at .2 ppbv; toluene was at .5 ppbv; ethyl benzene was at .02 ppbv; xylenes were at .1 ppbv, ➢	➢ In 2003 at the Lynn monitoring site,benzene was at ..45 ppbv; toluene was at 1.31 ppbv; ethyl benzene was at .14 ppbv; xylenes were at .4 ppbv. ➢ In 2003 at the Chicopee monitoring site,benzene was at .4 ppbv; toluene was at 1.15 ppbv; ethyl benzene was at .24 ppbv; xylenes were at .29 ppbv.

Outcomes	FFY 2002	FFY 2003	FFY2004
# of nonattainment areas and their associated populations that reach attainment, (including the number of ozone nonattainment areas that meet the 1-hour ozone standard(calendar year)	There has been no change in the attainment status during this period.	No change in 1-hour attainment status. In July, the Governor recommended 8-hr non-attainment status for the entire state. (Final designations will be made in April 2004.)	Entire state was classified as a moderate non-attainment area under the 8-hr ozone standard in April 2004

* ECOS Core Performance Measure

* ECOS Core Performance Measure

Goal 1: Clean Air - Maintain and Improve Outdoor Air Quality - Atmospheric Changes/Climate Change

Outcomes	FFY 2002	FFY 2003	FFY2004
Emissions reductions since 1990 for each criteria pollutant*	DEP has continued to refine the 99 inventory data. The following are estimated changes in emissions based on the 99 inventory , which will be finalized in early 2003. Emission change from 1990-1999: VOC: -24% NOx: - 7% SO2: -40% CO: -21%	Based on final revisions to 99 inventory: Emission change from 1990-1999: VOC: -25% NOx: - 7% SO2: -32% CO: -21%	Inventory data for 2002 has been compiled. Based on preliminary 2002 data, emissions changes from 1990 – 2002 are: VOC: - 36% NOX: - 14% SO2 : - 55% CO: - 35%
Reductions in air toxic emissions from 1990 levels*	DEP submitted toxic inventory data for an additional area source category Stage II Refueling, in July 2002. DEP reviewed and submitted revisions to EPA's toxic inventory data in February 2002.	No additional data is available.	DEP submitted mercury inventory data to EPA in 8/04 for inclusion in the 2002 National Emissions Inventory
Reduction in daily toxic emissions resulting from the Enhanced Vehicle Maintenance Program, effective 10/1/99	This indicator was dependent on finalization of EPA's Mobile v. 6.2 toxics model, which was just completed. Therefore that data is not yet available.	As of 2/04 still pending finalization of EPA's Mobile v. 6.2 toxics model. Therefore that data is not yet available.	model still not available; therefore no data to report
Reduction in daily toxic emissions resulting from the Stage II Vapor Recovery Program		This indicator is under discussion with senior management	
Emissions of air toxics, other heavy metals including VOCs (calendar years)	No change from last year to report	No change from last year to report	No additional information to report.

Outputs	FFY 2002	FFY 2003	FFY2004
Redesignation of areas attaining the current NAAQS, revocations of the 1-hour ozone NAAQS for areas attaining it, and designations of areas for the 8-hour ozone and PM-2.5 NAAQS*	No change in attainment status during this period.	MA recommended state-wide non-attainment status under the 8-hour ozone standard in July 2003 . (Designations will be finalized in April 2004.)	Entire state designated moderate non-attainment for 8-hour ozone in April 04 and attainment for PM 2.5 in Dec. 2004.
# of gas stations and automotive dealers trained and certified in the Enhanced Inspection and Maintenance Program	➢ In 2002, the number of inspection stations increased to 1,576 (1,453 of these are open to the public and 123 service fleets) ➢ Inspectors remain between 3500 and 4000; more than 800 auto technicians are trained in	➢ In 2003, 1579 stations tested vehicles (1470 open to the public an 109 service fleets) ➢ Inspectors numbered 4,560. Over 950 were trained in emission repairs and are associated with over 650	DEP has established training for registered repairers which will begin in May 2005 and be offered throughout the summer and Fall. All repairers must complete training to retain status

* ECOS Core Performance Measure

* ECOS Core Performance Meansure

Goal 1: Clean Air - Maintain and Improve Outdoor Air Quality - Atmospheric Changes/Climate Change

Outputs	FFY 2002	FFY 2003	FFY2004
	emissions repairs.	registered repair shops.	
# of gas stations self certified in the Stage II Vapor Recovery Program	2,810 Certification forms received	3,508 Certification forms received	3504 Certification forms received
# of companies with 1,000+ employees which have submitted Rideshare Reports	242 Reports from 10/1/02 to 9/30/02	224 Reports from 10/1/02 to 9/30/03	113 Reportsfor 10/1/03 to 9/30/04
State progress in collecting and compiling ambient and emission source data for toxics to better characterize the nature and extent of toxic air pollution.*	**2002 mean values (ppb)** Rox L.Isl Lynn 1,3-butadiene 0.06 0.02 0.02 1,1,1-trichloroethane 0.03 0.03 0..03 trichloroethylene 0.01 0.01 0.004 tetrachloroethylene 0.01 0.02 0.03 benzene 0.36 0.23 0.19 toluene 0.95 0.41 0.33 xylenes 0.47 0.25 0.09 ethylbenzene 0.23 0.13 0.05 **2001 mean values (ppb)** Rox L.Isl 1,3-butadiene 0.06 0.02 1,1,1-trichloroethane 0.06 0.03 trichloroethylene 0.02 0.01 tetrachloroethylene 0.05 0.03 benzene 0.37 0.19 toluene 0.84 0.34 xylenes 0.16 0.06 ethylbenzene 0.15 0.06 The Long Island sampler was relocated to Lynn. Carbonyl sampling at Chicopee was suspended due to staffing shortages (resumed in 2003). The Agawam monitoring site was discontinued with its sampling equipment relocated to Ware. Blue Hill became operational as a Type 1 PAMS site. PAMS equipment moved from Truro to Fairhaven for the 2002 season for evaluation. This equipment will be returned to Truro in 2003 as the Fairhaven location was found to provide no additional benefit. No toxic data has been submitted to AIRS because we lack the necessary resources to convert the data into the format that would be acceptable to the AIRS system.	A PM 10 sampler was installed at the Roxbury toxic site that will begin sampling for toxic metals in 2004. A GC was installed at the Ware PAMS site to allow hourly VOC data to be collected. An aethelometer was installed at the North End site.	The toxics VOC data, taken from samples collected at Roxbury, Long Island and Lynn over the last several years has been formatted and submitted to AIRS. Chromium +6 sampling began at Roxbury in January, 2005. The National Air Toxics Trends Site in Roxbury received a new shelter in October, 2004. The PAMs sampling equipment, previously located at Truro and Fairhaven, was moved to Long Island and operated during the 2004 PAMs season. **2003 mean values (ppb)** Rox Lynn 1,3-butadiene 0.05 0.01 1,1,1-trichloroethane 0.03 0.02 trichloroethylene 0.02 0.02 tetrachloroethylene 0.06 0.03 benzene 0.39 0.21 toluene 0.94 0.57 xylenes 0.27 0.12 ethylbenzene 0.15 0.07

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Trend Analysis

AMBIENT AIR QUALITY AND EMISSIONS

Despite increases in activities that contribute to air pollution such as fuel use, economic activity, and vehicle miles traveled, Massachusetts' air quality has improved significantly over the 18-year period from 1985 to 2003. Massachusetts air complies with the National Ambient Air Quality Standards (NAAQS) for Carbon Monoxide (CO), Sulfur Dioxide (SO_2), Lead (Pb), Particulate Matter –10 (PM_{10}), Nitrogen Dioxide (NO_2).

All PM 2.5 monitors in the state are measuring levels below the PM 2.5 standards. Ozone is the only NAAQS that MA is violating.

However, the number and magnitude of exceedances of the 1-hour ozone standard have declined significantly since the 1980s. The improvements in the 1-hour ambient ozone levels have coincided with the implementation in-state and throughout the Ozone Transport Region (the "northeast corridor") of major state and federal programs designed to reduce ozone precursor emissions from industries, power plants, vehicles, and consumer products that contribute to ambient air pollution. Additional reductions in precursor emissions, especially from upwind sources, will be needed if Massachusetts is to see further reductions in 1-hour exceedances and to attain the 8-hour ozone standard that was adopted in 1997.

Ambient Air Quality

NAAQS Pollutants

DEP's air quality monitoring network for criteria pollutants has measured the following changes:

- **CO** concentrations have declined by 82% from 1985 to 2004
- **SO_2** concentrations have declined by 72% from 1986 to 2004
- **NO_2** concentrations have declined by 51% from 1985 to 2004
- **Pb** concentrations have declined by 96% from 1987 to 2004
- **PM_{10}** concentrations have declined by 35% from 1989 to 2004

The trends for SO_2, CO, NO_2, Pb, and PM_{10} have been relatively stable over the last six years, at levels below the applicable standards.

Exceedances of the 1-hour Ozone (0_3) standard have declined from as many as 109 exceedances per ozone season from 1987 – 1995 down to 10 or less per ozone season since 1995, with the exception of 2002 when there were 22 exceedances. The number of *days* when the 1-hour standard was exceeded dropped from around 10 per ozone season during the late 1980s and 1990s to 7 or fewer days per ozone season in the most recent 3 years.

The number of days that the more stringent 8-hour O_3 standard has been exceeded, however, has been fairly stable over roughly the same time period (typically in the 20-30 day range)However, the total number of measured 8-hour exceedances at all monitors (as opposed to days on which the standard was exceeded at one or more monitors) has displayed less stability, ranging from a high of 264 in 1988 to a low of 15 in 2000. The average number of measured 8-hour exceedances per year has been 83 over the period 1985 to 2003. In 2004 there were 19 exceedances.

Ozone, in particular, can exhibit striking year-to-year variations since meteorological fluctuations significantly influence the chemical processes that produce ozone as well as the quality of the air masses entering Massachusetts.

PM2.5 average annual means have generally declined since monitoring started in 1999 (the average annual mean for sites existing in 2004 is down from 12.7 ug/m^3 in 1999 to 11.2 in 2004). However, average peak values represented by the 98^{th} percentile have fluctuated between 30 and 40 ug/m^3 over the same period with

no clear trend (for sites existing in 2004). More data will be needed to determine whether these constitute a longer term trend.

Air Toxics data from the PAMS Network (1998 to 2003)

Lynn and Chicopee Data: MADEP collects 24-hour hydrocarbon and carbonyl samples every six days year round at the Lynn and Chicopee sites. Values for several health relevant compounds (formaldehyde, acetaldehyde, benzene, toluene, and xylene) are extracted from either the hydrocarbon or carbonyl analyses. The data gathered at the Lynn and Chicopee PAMS sites show a relatively large decrease in benzene, toluene and xylene values between 1994 and 1995, likely the result of the use of reformulated gas, first introduced in 1995. However, the trend for these three chemicals for the past four years has been relatively flat.

Roxbury and Long Island Data: In 2000 DEP began collecting selected air toxic samples at the Roxbury and Long Island monitoring sites. At the present time insufficient data exists to make a trend analysis. (Note: Long Island air toxics sampler discontinued in 2002; Lynn has been designated for air toxics since then.)

Ozone Precursors Trends Analysis:

Benzene, Toluene, and Xylenes levels monitored in Lynn and Chicopee since 1994 have declined by approximately 70% since 1994. However most of that decline occurred between the 1994 and 1995 monitoring seasons, probably as a result of reformulated gasoline being introduced in 1995. Ethyl Benzene values have stayed relatively stable during the entire period. Over the past four years values for all these compounds have been relatively flat.

- While the 18-year (1985-2003) trend for NO_2 indicates a decline in annual NO_2 average values of approximately 56%. The 6-year NO_2 trend (1997-2002) had reached a plateau, with an annual NO_2 average of approximately 0.015 ppm being observed during this period. However, in 2003, O2 levels dropped to 0.013. These concentrations are all well below the ambient NO_2 standard of 0.053 ppm.

Emissions Reductions Trends Analysis

Emissions inventories are updated every three years. DEP is currently finalizing a 2002 emissions inventory. Preliminary 2002 data was submitted to EPA in June 2004 and will be issued for public comment in 2005. Emission trends are shown from 1990 through 2002, based on the preliminary 2002 inventory data. The trends illustrate success in moving toward the goal of ensuring that citizens have clean air to breathe, and corroborate the gains seen in ambient air quality. Programs that are being implemented subsequent to 2002 such as low sulfur fuel and California Low Emission Vehicle Standards will ensure continued downward trends in emissions of motor vehicle-related criteria pollutants and their precursors, and should lead to continued progress toward reducing 8-hour ozone concentrations, and continued attainment of the standards for the other pollutants. Attainment of the 8-hour standard will be dependent on further national, regional and state emission reduction programs.

VOC Emissions Trend: 1990 to 2002: - 36 %

The 1990 to 2002 VOC reductions are the result of controls that DEP implemented to meet provisions of the federal Clean Air Act (CAA) Amendments of 1990 for geographical areas not meeting the health-based ozone ambient standards. These control measures include: Basic automobile control Inspection and Maintenance (I/M) and, since 1999, Enhanced I/M, Federal Motor Vehicle Control Program**,** California LEV since 1995, Reasonable Available Control Technology (RACT) requirements for point sources, Stage II Vapor Recovery for Gasoline Stations, Architectural Coatings (i.e., lower paint emissions), and Reformulated Gasoline. On-road mobile VOC emissions were reduced by 57% during this period, despite a continued increase in vehicle miles traveled.

Goal 1: Clean Air - Maintain and Improve Outdoor Air Quality - Atmospheric Changes/Climate Change

NOx Emissions Trend: 1990 to 2002: - 14%

The 1990-2002 NOx reductions are based on controls that DEP implemented to meet the NOx provisions of the federal Clean Air Act (CAA) Amendments of 1990 for geographical areas not meeting the health-based ozone ambient standards. Emission reductions from 1990 to 2002 were derived from control measures such as: Basic and Enhanced I/M, Federal Motor Vehicle Control Program, California LEV and Reasonable Available Control Technology (RACT) on combustion units on point sources (industries, utilities). These reductions were achieved despite overall economic growth during this time period. Point source NOx emissions, primarily power plants, were reduced by 59% for this period. Area source emissions decreased by 9%. On-road mobile emissions decreased 2% during this period while off-road mobile emissions increased by 18%. Off-road NOx mobile emissions are expected to decrease in future years as new control programs are implemented.

SO_2 Emission Trends: 1990 to 2002: - 55 %

SO_2 emissions are tracked annually as part of the requirements of the 1985 State Acid Rain (STAR) program. Nearly all SO_2 emissions are from large point sources, especially power plants. The STAR program established a 412,000-ton state cap, which is more stringent than the federal acid rain program. The SO_2 emission estimate for 2002 is 166,286 tons, which is significantly lower than the cap. Reductions are the result of emission controls.

CO Emission Trends: 1990 to 2002: - 33%

There was a 54% reduction in on-road mobile emissions during this period as a result of the on-road mobile source programs described above under VOC and NOx trends. This decrease in mobile emissions was partially offset by an 18% increase in off-road CO emissions. There was a 17% decrease during this period in point source CO emissions.

List of References of Work Products Available

Regulations

The following regulations and polices were published or worked on in FFY04:

- ZEV rule - emergency rule adopted 12/19/03 and final rule adopted July 2004
- Mercury standards for large power plants - 7.29 regulations - May 2004
- Public Benefit Set-aside Regulations - July 2004

Policies:

- Municipal Waste Combuster Emissions Reporting went live Sept 2003

Inspection and Maintenance Work Products

- List of 200 highest volume ESP stations
- 2002 Annual Report for the Massachusetts Inspection and Maintenance Program
- 2002 I&M Program Annual Report
- Applus+ letter to Inspection Stations (PDF)
- Enhanced Emissions & Safety Test Contract Amendment
- Enhanced Emissions & Safety Test Contract Amendment Summary
- Enhanced Emissions & Safety Test Questions & Answers About the Contract Amendment:
- Equipment Replacement and Upgrade Phase-in
- Inspection and Maintenance Program Additional Inspector/Repairer Information
- Inspection and Maintenance Program Contract Amendment Summary
- Inspection and Maintenance Program Contract Summary
- Inspection and Maintenance Program DEP Letter to Inspection Stations (PDF)

Goal 1: Clean Air - Maintain and Improve Outdoor Air Quality - Atmospheric Changes/Climate Change

- Inspection and Maintenance Program ESP Workstation Testing Instructions (PDF)
- Inspection and Maintenance Program Letter to Registered Repair Shops (PDF)
- Inspection and Maintenance Program List of First 200 ESP Stations to Receive SPX Equipment
- Inspection and Maintenance Program News Release (MS Word format)
- Inspection and Maintenance Program Questions & Answers about Equipment Changes
- Inspection and Maintenance Program Questions & Answers About the Contract Amendment

Air Monitoring Work Products

- Commonwealth of Massachusetts 2003 Air Quality Report
- A new downtown Worcester site (replacing the Fire Station site) at Summer Street in January, 2004.
- A shelter installed as an expanded station in Haverhill, at the Consentino School in April, 2004.

Other Work Products

- Asbestos Information and Resource Guide Oct 2003
- Final Mercury Regulations for Power Plants
- Final NOx Trading Program Regulation (310 CMR 7.38) and response to comments on Public Benefit Set Aside amendments
- Final ZEV amendment to LEV regulations and response to comments
- Forms and instructions for BWP AQ26 PBSA NOx Allowances
- New RES/Approval-Limited Emissions Reporting Site
- New school bus idling reduction page
- Proposed air reg revisions, background document and public hearing notice
- Regional Haze Web page
- Rideshare program page and materials
- South Boston Parking Freeze finding of adequacy and response to comments
- South Boston parking freeze materials
- 2002 Emissions Inventory for Ozone Precursors

Goal 2: Clean and Safe Water - Strategic Priorities

The 2004 Performance Partnership Agreement included Strategic Priorities that the Department is pursuing. The following is a summary of progress on those priorities during 2004.

Restoring Impaired Waters

FFY 04-05 Outputs:

- Pursue innovative approaches to TMDL-development and to addressing water quality impairments through the Assabet River and Massachusetts Estuaries projects described in detail below
  Update: The Assabet River TMDL was completed and approved by EPA during FY04. The Chatham TMDL (addressing 5 estuaries) was finalized after a public meeting and submitted to EPA for approval during FY04. Bacteria TMDLs were finalized after a public meeting for Frost Fish Creek and Muddy Creek in Chatham and are awaiting EPA approval. Technical reports and draft TMDLs were developed for Popponessett Bay and Quashnet River during the first quarter of FFY05. Several additional technical reports are under development.
- Continue to work with EPA Region1, other New England States, and the New England Interstate Water Pollution Control Commission to identify waters where other activities or plans are in place and can serve as "TMDL Equivalent" plans. Once identified and agreed to, these waters can be moved from Category 5 of the State Integrated List of Waters to Category 4b. TMDLs would then not be needed and existing plans would address the water quality impairment.
  Update: Several meetings with Region 1 were held during FFY04 and are continuing. MA has developed an innovative project to move waters impaired from atmospheric mercury to category 4b of the integrated list. The final plan and revised list will be submitted to EPA in FFY05. MA and EPA Region 1 are also working together to develop a statewide generic bacteria TMDL with the completion goal in late 2005. MA is also participating with other New England States, Region 1, and ENSR International in the development of a simplified stormwater TMDL using the impervious cover methodology.
- In FY 04 continue to develop and finalize nutrient TMDLs for 5 Chatham embayments, the Assabet River (13 TMDLs), the Kickemuit River and bacterial TMDLs for Muddy Creek, Frost Fish Creek. Also finalize TMDLs for the Shawsheen headwaters (habitat impairment) and Palmer River (13 bacterial TMDLs)
  Update: See bullet above for update on the Assabet River and MA Estuaries Project. MA is still waiting for RI to set up public meeting on the Kickemuit TMDL and is evaluating legal options to finalize the Shawsheen headwaters TMDL. The Palmer River TMDL was finalized and approved by EPA in FFY04.
- Continue work on additional TMDLs where data collection and related activities have commenced including the Nashua River, Charles River, Pomponessett Bay, Waquoit Bay sub-systems, Great, Green, Bournes and Quaboag Ponds, Oyster Harbor and Nantucket Harbor
  Update: Nashua model has been finalized and options analysis is underway. Charles River is under contract to CRWA and making progress. Popponessett bay tech report and draft TMDL have been completed with public meeting scheduled for March 30, 2005. Quashnet River (Waquoit Bay) tech report and draft TMDL completed and under internal review and should be completed in FFY05. Draft tech report for Great, Green, and Bournes Ponds completed and under internal review. Data collection completed and TMDL evaluation under way for Quaboag/South Pond system and is on schedule for completion during FFY05. Draft tech Report for Oyster Pond (bacteria TMDL) under development. Data collection still under way for Nantucket bacteria TMDL.
- Commence work on other TMDLs as resources allow and as negotiated with EPA during the 2004-2005 period

Assabet River Phosphorus Loading Project - Nutrients

FFY 2004-2005 Outputs:

- Development of draft and final TMDL for nutrients
  Update: completed and approved
- Hold public meetings

Update: completed

- Respond to comments and finalize TMDL for submittal to EPA for approval
  Update: completed
- Develop Draft and Final NPDES permits with EPA
  Update: draft completed in FFY04; final pending
- Hold Public hearings if necessary in 2004 and finalize permits
  Update: completed
- Work with the Army Corps of Engineers and Assabet River stakeholders to develop scope of work for sediment/dam removal feasibility study
  Update: agreement w/ACOE completed, partial funding transferred; preliminary scope of work developed with stakeholders
- Finalize initial work with USGS on sediment quality data collection and interpretation
  Update: field work completed, awaiting final report
- Begin development of a monitoring plan to implement and assess progress as the phased approach is implemented.
  Update: initial draft developed and under internal review

Massachusetts Estuaries Project - Nutrients

FFY2004-2005 Outputs:

- Conduct on-going data gathering and modeling activities during 2004-05, including:
  - Complete draft technical reports for 15 embayments in FFY04, including the five already completed Chatham reports
    Update: as of 10/04 9 completed including Chatham (5), Popponessett (1), and Quashnet (3)
  - Complete final technical reports for 11 embayments in FFY04, including the five Chatham reports
    Update: as of 10/04 completed 6 Final tech reports including Chatham(5) and Popponessett (1)
  - Complete draft technical reports on 7 additional embayments in FFY05
    Update: additional draft tech reports completed in FFY05 include Great Pond, Green Pond, Bournes Pond; work under way on Oyster Pond, Three Bays, Wareham River, West Falmouth Harbor, New Bedford Inner Harbor, and Pleasant Bay (3).
  - Complete final technical reports on 9 additional embayments in FFY05
    Update: current schedule calls for finalizing Quashnet (3), Great Pond, Green Pond, Bournes Pond, Little Pond, Oyster Pond, Three Bays, Wareham River, and West Falmouth Harbor
  - Prepare TMDL's for 7 embayments in FFY 2004, and 10 embayments in FFY05
    Update: 8 draft TMDLs prepared in FFY04 including Chatham (5), Quashnet (3), Popponessett Bay (1), Frost Fish Creek bacteria (1), Muddy Creek bacteria (1)
  - Initiate data gathering and modeling in 12 new embayments in FFY04, and in 11 embayments in FFY05
    Update: data gathering under way in 49 embayments; modeling under way in most waters identified above where draft technical report development is underway for FFY05.
- Continue pre-technical assessment nutrient monitoring in an additional 64 embayments through FY04-05 in anticipation of doing modeling and preparing technical reports and TMDL's in those basins in future years.
  Update: data gathering under way in 49 embayments

Combined Sewer Wet Weather Overflows (CSO's)

FFY 2004-2005 Outputs:

- Review SRF applications for CSO funding-**Ongoing**

Goal 2: Clean and Safe Water - Strategic Priorities

- Provide SRF funding to eligible projects, DEP estimates range up to $100 million over the next two calendar years
  Status Ongoing
- Technical assistance to communities
  Status Ongoing
- Review draft and final CSO plans for compliance with the Clean Water Act and State Water Quality Standards
  Status Ongoing
- Review Water Quality Standard classifications for CSO-impacted receiving waters during the CSO planning process
  Status Ongoing
- Negotiate Orders with EPA and Court parties to establish construction schedules for CSO abatement work
  Status Ongoing
- Work with EPA and watershed groups to review water quality information on CSO discharges and their impacts.
  Status Ongoing

Restore Mount Hope Bay: Improve Fisheries Habitat by Reducing Thermal Load at Brayton Pt

FFY 2004-2005 Outputs:

- The appeal of the conditions of the NPDES permit will require USEPA and MADEP to spend considerable time preparing briefs for submittal to the USEPA Appeals Board. It is anticipated that the appeal process could take several months or longer in 2004-2005.
  Status Ongoing

Environmental Goals Pilot Project for Selected Water Programs

FFY 2004-2005 Outputs:

- DEP expects to have that data live on the web by early summer 2004. Because DEP anticipates making the information available on the web, much less detail has been included in the written PPA.
  Update: Environmental Progress Report is posted on the Web.

Goal 2: Clean and Safe Water - Drinking Water/Human Health and Safety

Objectives

- Water that is safe to drink
- Sufficient water for public health and safety

Drinking Water Targets

- Set standards for safe drinking water at PWS
- Know if delivered water is meeting standards
- Assure compliance with drinking water standards
- Support private water supply safety
- Protect existing sources
- Identify and protect future sources of drinking water

Health and Safety Targets

- Promote wise use of water supply we have
- Maintain adequate pressure for fire fighting
- Assure capacity to respond to emergencies

2004 Highlights in meeting objective

In 2004, DEP had several successes in advancing this goal. These included:

- Maintaining high compliance rates across all program areas
- Completing source water assessment plans for all community systems
- Identifying unregistered public water systems and bring them into compliance.
- Obtaining grant funds to provide testing and education for daycare facilities on lead in drinking water.
- Initiating a program to get all schools tested for lead in their drinking water.
- Encouraging and requiring completion of New System Business Plans, emergency response plans and capital improvement plans

DEP conducted these training or outreach sessions:

- Lead in school drinking water
- Financial management for public water systems
- Consumer Confidence Reporting
- Source Water Protection
- Under ground Injection control

.

Environmental Indicators and other Performance Measures

Environmental Indicators	FFY 2002	FFY 2003	FY 2004
# and % of community and non-transient non-community water systems (and population served) with one or more violations of health-based requirements during the year, reported separately for violations of the Total Coliform Rule (TCR), Radionuclides, chemical contaminants, Lead and Copper Rule (LCR), Surface Water Treatment Rule (SWTR),	[Reporting data in this format is not required in 2002. See next row.]	[Reporting data in this format is not required in 2003. See next row.]	[Reporting data in this format is not required in 2004. See next row.]

Goal 2: Clean and Safe Water - Drinking Water/Human Health and Safety

Environmental Indicators	FFY 2002	FFY 2003	FY 2004
and all other regulated contaminants[1]			
# of: a) community drinking water systems and % of population served by community water systems, and b) non-transient, non-community drinking water systems and % of population served by such systems, with no violations during the year of any federally enforceable health-based standard (EPA will develop language clarifying meaning of "federally enforceable")*	**For Community and Non-transient non-community systems (NTNC) only** **TCR: Community** ➢ Acute MCL – 508 systems serving 91% population ➢ Monthly MCL – 478 systems serving 94% population **TCR: NTNC** ➢ Acute MCL – 247 systems serving 99% population; ➢ Monthly MCL – 245 systems serving 97% population **Nitrate: Community** 515 systems serving 100% population **Nitrate: NTNC** 249 systems serving 99% population **Nitrites: Community** 515 systems, 100% population **Nitrites: NTNC** 250 systems, 100% population **Radiological: Community** 515 systems, 100% population **Radiological: NTNC** N/A **IOC: Community** 515 systems, 100% population **IOC: NTNC** 250 systems, 100% population **TTHM: Community** 515 systems, 100% population **TTHM: NTNC** N/A **SOC: Community** 515 systems, 100% population **SOC: NTNC** 250 systems, 100% population **VOC: Community** 514 systems, >99% population **VOC: NTNC** 250 systems, 100% population **LCR: Community** 494 systems serving 97% population **LCR: NTNC** 249 systems serving 99% population **SWTR: Community** 160 systems serving >99% population **SWTR: NTNC** 2 systems serving 100% population	**For Community and Non-transient non-community systems (NTNC) only** **TCR: Community** ➢ Acute MCL – 502 systems serving 98% population; ➢ Monthly MCL – 474 systems serving 95% population. **TCR: NTNC** ➢ Acute MCL – 249 systems serving 99% population; ➢ Monthly MCL – 234 systems serving 91% population. **Nitrate: Community** 513 systems serving 100% population. **Nitrate: NTNC** 248 systems serving >99% population. **Nitrites: Community** 512 systems serving >99% population. **Nitrites: NTNC** 250 systems, 100% population. **Radiological: Community** 513 systems, 100% population. **Radiological: NTNC** N/A **IOC: Community** 513 systems, 100% population. **IOC: NTNC** 250 systems, 100% population. **TTHM/HAA5: Community** 512 systems serving >99% population. **TTHM/HAA5: NTNC** N/A **SOC: Community** 513 systems, 100% population. **SOC: NTNC** 250 systems, 100% population. **VOC: Community** 512 systems serving >99% population. **VOC: NTNC** 250 systems, 100% population. **LCR: Community** 494 systems serving 96% population. **LCR: NTNC** 249 systems serving 99% population. **SWTR: Community** 165 systems serving 99%	**For Community and Non-transient non-community systems (NTNC) only** **TCR: Community** ➢ Acute MCL – 504 systems serving 95% population; ➢ Monthly MCL – 462 systems serving 88% population. **TCR: NTNC** ➢ Acute MCL – 251 systems serving 96% population; ➢ Monthly MCL – 236 systems serving 94% population. **Nitrate: Community** 516 systems serving 100% population. **Nitrate: NTNC** 252 systems serving >99% population. **Nitrites: Community** 516 systems serving 100% population. **Nitrites: NTNC** 253 systems, 100% population. **Radiological: Community** 513 systems serving >99% population. **Radiological: NTNC** N/A **IOC: Community** 516 systems, 100% population. **IOC: NTNC** 252 systems serving 99% population. **STAGE 1 DBPR: Community** 513 systems serving 99% population. **STAGE 1 DBPR: NTNC** 253 systems serving 100% population **SOC: Community** 516 systems, 100% population. **SOC: NTNC** 253 systems, 100% population. **VOC: Community** 515 systems serving >99% population. **VOC: NTNC** 252 systems serving >99% population. **LCR: Community** 504 systems serving 98% population. **LCR: NTNC**

[1] **Note:** "Health-based requirements" were interpreted as MCL violations for TCR and nitrate, failure to install optimal treatments for LCR, failure to filter for SWTR, and MCL violations for other regulated contaminants.

* ECOS Core Performance Measure

Goal 2: Clean and Safe Water - Drinking Water/Human Health and Safety

Environmental Indicators	FFY 2002	FFY 2003	FY 2004
		population. **SWTR: NTNC** 2 systems serving 100% population.	249 systems serving 98% population. **SWTR/IESWTR: Community** 164 systems serving 99% population. **SWTR/IESWTR: NTNC** 3 systems serving 100% population.
# of waterborne disease outbreaks (*Cryptosporidium, Giardia, enteric virus and bacteria*)	No outbreaks.	No outbreaks.	No outbreaks.

Outcomes	FFY 2002	FFY 2003	FY 2004
Estimated number of community water systems (and estimated % of population served) implementing a multiple barrier approach to prevent drinking water contamination (EPA and States will expeditiously define "multiple barrier approach") [•]	515 community public water systems (100%) have multiple barriers (more than 1 barrier) to prevent drinking water contamination. Multiple barriers may include source protection, source water assessments (SWAP), treatment, (including disinfection), distribution protection, adequate capacity and certified operators. Specific tabulations for each of these barriers are included elsewhere in this report. Program descriptions, policies and standard operation procedures for each of these barriers were previously provided to EPA.	511 community public water systems (>99%) have multiple barriers (more than 1 barrier) to prevent drinking water contamination. Multiple barriers may include source protection, source water assessments (SWAP), treatment (including disinfection), distribution protection, adequate capacity, and certified operators. Specific tabulations for each of these barriers are included elsewhere in this report. Program descriptions, policies, and standard operation procedures for each of these barriers were previously provided to EPA.	522 community public water systems (100%) have multiple barriers (more than 1 barrier) to prevent drinking water contamination. Multiple barriers may include source protection, source water assessments (SWAP), treatment (including disinfection), distribution protection, adequate capacity, and certified operators. Specific tabulations for each of these barriers are included elsewhere in this report. Program descriptions, policies, and standard operation procedures for each of these barriers were previously provided to EPA.
# and % of systems with approved distribution protection plans*	515 Community systems (>99%) 245 NTNC (98%) 896 TNC (97%)	516 Community systems (100%); 247 NTNC (99%); 898 TNC (98%).	522 COM (100%) 249 out of 255 NTNC (97.6%) 892 out of 934 TNC (95.5%)
# and % of systems with boil orders for bacteria that are returned to compliance	Five systems out of 1, 683 (0.3%)	Five systems out of 1,681 (0.3%)	Six systems out of 1,691 (0.4%)
# of newly identified systems with MCL violations[2]	None.	1 system (TNC, Monthly MCL violation for TCR)	3 systems (COM: Acute MCL violation for TCR; COM: Monthly MCL violation for TCR; TNC: Both Acute MCL and Monthly MCL violations for TCR)
# and % of systems exceeding the lead action level	11 systems (2%) (Community and NTNC only)	13 systems (2%) (Community and NTNC only)	57 systems (7%) (Community and NTNC in most recent monitoring round)
# and % of exceedances of the Action Level for lead resolved as a result of the DEP/DPH Referral Program for Lead Poisoned Children	2 (100%)	None reported in FFY2003.	None reported in FFY2004

[•] ECOS Core Performance Measure

[2] **Note:** "Health-based requirements" were interpreted as MCL violations for TCR and nitrate, failure to install optimal treatments for LCR, failure to filter for SWTR, and MCL violations for other regulated contaminants.

Goal 2: Clean and Safe Water - Drinking Water/Human Health and Safety

Outcomes	FFY 2002	FFY 2003	FY 2004
# and % of systems with improved capacity	**Community and Non-transient non-community systems:** 159 systems (22%). This includes 62 during CCE inspections; 97 that received capacity assessments with a sanitary survey; and 26 systems that received SRF funding. **Transient non-community systems:** 140 systems (16%) that received CCE inspections with preliminary capacity review.	**Community and Non-transient non-community systems:** 140 systems (19%). This includes 64 during CCE inspections; 79 that received capacity assessments with a sanitary survey; and 16 systems that received SRF funding. **Transient non-community systems:** 46 systems (5%) that received CCE inspections with preliminary capacity review.	**Community and Non-transient non-community systems:** 157 systems (21%). This includes 19 during CCE inspections; 108 that received capacity assessments with a sanitary survey; and 30 systems that received SRF funding. **Transient non-community systems:** 56 systems (7%) that received CCE inspections with preliminary capacity review.
# and % of systems with certified operator	1,685 (97.5%)	1,672 (99.5%)	1,611 (95.3%) (Primary operators)
# and % of systems who completed Consumer Confidence Reports	487 (95.7%)	512 (99.6%)	499 (96.7%)

Outputs	FFY 2002	FFY 2003	
# of Comprehensive Compliance Evaluations (CCEs)	63 CCE surveys were completed.	64 CCE surveys were completed.	19 CCE surveys were completed.
Progress on DEP/EPA developed pilot program for risk-based program	N/A	N/A	DEP is continuing to use its' risk based criteria to select sanitary surveys. The selection criteria are public health related, based on the documented compliance history of all community and non-transient non-community systems and use data available in the state database. For more details on this program see http://www.mass.gov/dep/brp/epp/dw/ascomwp.html.
# of sanitary surveys	221 sanitary surveys were completed, including 4 Comprehensive Performance Evaluations.	125 sanitary surveys were completed, including 5 Comprehensive Performance Evaluations.	164 sanitary surveys were completed, including 3 Comprehensive Performance Evaluations (CPE). Additionally, 798 self surveys from TNCs were received.
# of UIC inspections, wells returned to compliance, and outreach events (1999 text)	193 inspections; 54 Enforcement actions; 67 UIC wells returned to compliance: -41 Non-voluntary (after enforcement); -26 Voluntary (without enforcement). 18 Outreach events.	106 inspections; 32 Enforcement actions; 62 UIC wells returned to compliance: -31 Non-voluntary (after enforcement); -31 Voluntary (without enforcement). 8 Outreach events.	42 Registrations with out inspection 33 Inspections; 26 Enforcement actions (18 notices of noncompliance (NONs) & 8 higher level enforcement (HLE) 66 UIC wells returned to compliance: - 35 Non-voluntary (after enforcement); - 31 Voluntary (without enforcement). 18 Outreach events
# of on-site laboratory audits/inspections	31 inspections total (18 chemistry on-site inspections and 13 microbiology inspections) were conducted for laboratories performing analysis of drinking	36 inspections total (20 chemistry on-site inspections and 16 microbiology inspections) were conducted for laboratories performing analysis of drinking	52 inspections total (16 chemistry on-site inspections and 36 microbiology inspections) were conducted for laboratories performing

Goal 2: Clean and Safe Water - Drinking Water/Human Health and Safety

Outputs	FFY 2002	FFY 2003	
	water.	water.	analysis of drinking water.
# of laboratories certified for microbiological and chemical analyses under the SDWA certification program **In 2004, DEP will maintain commitment to timely on-site drinking water laboratory audits/inspections – all remaining state microbiological laboratories will be complete by Dec 31, 2004 (app. 36 inspections in 2004)**	**In-state Laboratories** 99 laboratories are located in Massachusetts: 32 are certified to analyze one or more chemical contaminants in potable water; 73 are certified to analyze for microbiological contaminants. **Out-of-state Laboratories** There are 75 laboratories located outside Massachusetts: 60 are certified to analyze one or more chemical contaminants in potable waters; 10 are certified to analyze for microbiological contaminants. Beginning July 2003, a schedule of 2 microbiology laboratory inspections per month should be possible, provided that funding is secured for the NEIWPCC employee to travel to Cincinnati for the EPA course and also to the laboratories to be inspected. This schedule will result in the inspection of approximately one-third of the microbiology laboratories each year. These plans depend on having the current level of resources available for the rest of state FY2003 and FY2004. *	**In-state Laboratories** 97 laboratories are located in Massachusetts: 33 are certified to analyze one or more chemical contaminants in potable waters; 72 are certified to analyze for microbiological contaminants. **Out-of-state Laboratories** There are 69 laboratories located outside Massachusetts: 54 are certified to analyze one or more chemical contaminants in potable water; 10 are certified to analyze for microbiological contaminants. At the end of December 2002, the principal microbiology laboratory certification officer position was filled as a NEIWPCC contractor, supported with federal set-aside funds provided by the U.S. EPA directly to the NEIWPCC. In June 2003, the microbiology laboratory certification officer successfully completed the U.S. EPA Microbiology Laboratory Certification Officer Training Course held at the U.S. EPA National Exposure Research Laboratory in Cincinnati, Ohio, and was certified by the U.S. EPA as a member of the regional certification team for microbiology. In July 2003, with the addition of this new certification officer, sufficient resources became available to implement a schedule of 3 microbiology laboratory inspections on average per month (i.e., an aggressive three-year inspection cycle).	**In-state Laboratories** 83 laboratories are located in Massachusetts: 32 are certified to analyze one or more chemical contaminants in potable water; 69 are certified to analyze for microbiological contaminants. **Out-of-state Laboratories** There are 58 laboratories located outside Massachusetts: 56 are certified to analyze one or more chemical contaminants in potable water; 10 are certified to analyze for microbiological contaminants. By December 31, 2004, the Laboratory Certification Office (LCO) had completed all outstanding microbiology on-site inspections. The decrease in the number of chemistry on-site inspections during FFY2004 is the result of the need to dedicate time and resources to the review and approval of laboratories to analyze drinking water for low-level perchlorate and to the review of data packages from the analysis of drinking water for low-level perchlorate. Despite the decreased frequency of chemistry inspections, all certified chemistry laboratories have been inspected well within the past three years. Current staffing permits the LCO to maintain, at the least, a three-year inspection cycle for both microbiology and chemistry laboratories as required by EPA.
# of capacity development reviews	**Community and Non-transient non-community systems:** 159 systems (22%). **Transient non-community systems:** 140 systems (16%).	**Community and Non-transient non-community systems:** 140 systems (19 %). **Transient non-community systems:** 46 systems (5%).	**Community and Non-transient non-community systems:** 157 systems (21 %). **Transient non-community systems:** 56 systems (7%).
# of operators certified or recertified	3,011 * Regarding EPA's comments on the 2001 PPA about numbers of certified or re-certified operators, the DEP can only speculate as to why the number of certified operators decreased. There can be a number of reasons such as computer error, operators failed to renew during renewal	3,968	4,542

Goal 2: Clean and Safe Water - Drinking Water/Human Health and Safety

Outputs	FFY 2002	FFY 2003	
	cycle, operators retiring, operators with OIT licenses not renewing, etc. DWP feels that the number is of minor significance since in Massachusetts 97.5% of the PWSs have operators and we are actively pursuing compliance with the remaining systems.		
# of water quality monitoring reports reviewed	**N/A**	**N/A**	- 30,000 (Estimate)
# of monitoring waivers reviewed and granted	5 VOC waivers, 27 SOC waivers, and 2 IOC waivers were reviewed and approved.	187 VOC waiver applications reviewed and 115 granted. 235 IOC waiver applications reviewed and 145 granted. 238 SOC waiver applications reviewed and 120 granted.	504 VOC waiver applications reviewed and 260 granted. 590 IOC waiver applications reviewed and 493 granted. 602 SOC waiver applications reviewed and 485 granted.
Regulatory changes	On 11/09/01, DEP issued final regulations for the Interim Enhanced Surface Water Treatment Rule (IESTWR), Disinfection Byproduct Rule (DBPR), Modifications to the Lead and Copper Rule, Public Notification and Unregulated Contaminant Monitoring Rule (UCMR). In FY 2002, DEP also issued draft regulations for the Filter Backwash Recycle Rule (FBRR), the Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR), Radionuclides Rule and for modifications to the existing Arsenic Rule, including a new Maximum Contaminant Level.	On 12/6/02, DEP issued final regulations for the Filter Backwash Recycle Rule (FBRR), the Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR), Radionuclides Rule, and for modifications to the existing Arsenic Rule, including a new Maximum Contaminant Level.	On 4/23/04, DEP issued final regulations revising the Drinking Water Regulations (310 CMR 22.00) to incorporate technical corrections to sections 22.20.A and 22.20D, based on the EPA review of the Primacy Package for the Interim Enhanced Surface Water Treatment Rule. Additionally, on 4/23/04 DEP issued final regulations revising the Laboratory Certification Regulations (310 CMR 42.00) to incorporate technical corrections to sections 42.05 and 42.19, based on the EPA review of the Primacy Package for the Disinfectants/ Disinfection Byproducts Rule.
Increased level of enforcement	DEP extended its Comprehensive Compliance Strategy to include Ground Water Under the Influence for transient non-community systems. DEP continues to work to improve Boston-regional coordination. DEP continued to implement its enforcement strategy. DEP used many tools to enhance enforcement, including one-page electronically updated notices of non-compliance and pre-determined penalty assessment notices. DEP continues to work to improve Boston-regional coordination.	DEP continued to implement its enforcement strategy. DEP used several innovative tools to enhance enforcement, including working in partnership with the Massachusetts Board of Certification of Drinking Water Operators to initiate pre-enforcement action against 30 certified operators that provided oversight to public water systems with 5 or more violations. DEP also worked in partnership with the Massachusetts Department of Public Health and local boards of health to initiate suspension or revocation of local permits whenever there was overlapping jurisdiction with recalcitrant public water systems. DEP continued to use one-page electronic notices of non-compliance and pre-determined penalty assessment notices. DEP continues to work to improve Boston-regional coordination.	DEP continued to implement its enforcement strategy and use electronic tools to expedite enforcement. DEP updated its Drinking Water Comprehensive compliance evaluation to remove the 6-month enforcement forbearance for newly discovered existing TNCs with large daily consumer rates. DEP targeted transient non-community systems with large daily consumer rates for registration evaluation and enforcement. E.g. gas stations

Goal 2: Clean and Safe Water - Drinking Water/Human Health and Safety

Outputs	FFY 2002	FFY 2003	
Technical assistance to public water suppliers	10 Source Protection related outreach events targeted to public water suppliers alone or in combination with local officials. In addition, 458 public water systems had 674 technical assistance encounters as a result of SRF set-asides funding. Technical assistance was also targeted to specific groups including boards of health, mobile home parks and campgrounds.	433 technical assistance visits to public water systems as part of the SWAP Program outreach. 9 Vegetation Management Panel (VMP) technical assistance meetings. Wellhead protection assistance resulted in 112 sources being protected. 50 technical electronic training encounters on distribution protection were completed. In addition, 369 public water systems had 494 technical assistance encounters as a result of SRF set-asides funding. Technical assistance was also targeted to specific groups including non-governmental agencies (NGOs) and certified operators, schools, boards of health, mobile home parks, and campgrounds.	235 technical assistance visits to public water systems as part of the SWAP Program outreach. 10 surface water supply plans developed. 5 Vegetation Management Panel (VMP) technical assistance meetings. Technical assistance provided on 1 open space plan, 3 storm water management plans, and 1 forest management plan and2 water supply protection by-laws. 3 meetings/conferences on community participation in drinking water protection 186 technical electronic training encounters on distribution protection were completed. In addition, 369 public water systems had 494 technical assistance encounters as a result of SRF set-asides funding. 13 water systems (55 sources) received wellhead protection compliance assistance. 8 water systems received assistance to develop wellhead protection plans. 56 water systems were assisted with source water protection criteria for use with monitoring waivers. 6 systems were assisted with source protection conditions for their water management permits. 31 communities were assisted with wellhead protection issues related to zoning, health regulations, land uses, land acquisition , storm water run off and EOEA land acquisition grant application. 18 UIC trainings conducted and 3 guidance documents issued.
In 2004 DEP will: a) work with MWRA and member communities to address comments on MWRA's sampling plan for lead and copper; b) respond to an invalidation request by MWRA on the September 03 sampling; c) establish water quality control parameters for optimal corrosions control treatment; d) address any item relating to the MWRA's notice of noncompliance and compliance with the Lead and Copper Rule; and e) continue to coordinate with EPA to address regional and national inquiries relating to overall compliance with the Lead and Copper Rule.	N/A	**N/A**	DEP a) worked with MWRA and member communities to address comments on MWRA's sampling plan for lead and copper; b) responded to an invalidation request by MWRA on the September 03 sampling; c) set out a plan to establish water quality control parameters for optimal corrosions control treatment; d) addressed MWRA's notice of noncompliance and compliance with the Lead and Copper Rule; and e) continued to coordinate with EPA develop and provide training for MA PWSs on compliance with the Lead and Copper Rule.

Goal 2: Clean and Safe Water - Drinking Water/Human Health and Safety

Outputs	FFY 2002	FFY 2003	
# of GWUDI, # sources EXEMPT by GIS Methods; # of Sources exempt by field evaluation: # GWUDI sources NON-EXEMPT	N/A	N/A	In 2004 there were 1501NTNCs Sources potentially subject to the GWUDI. Of these, 1454 were exempt by field evaluation. 47 sources were not exempt. Of the 47 non-exempt sources 9 are conducting MPA testing, 1system/source is planning to install filtration and 37system/ sources are in the process of deciding an action plan.
# of loans to assist in achieving compliance with SDWA requirements	26 loans.	16 loans.	30 loans
# of source protection plans reviewed and approved	8 source protection plans reviewed and approved.	34 source protection plans reviewed and approved (4 ground water; 30 surface water).	33 source protection plans reviewed and approved (33 ground water).
# of source water assessments	467 final assessment reports.	215 final assessment reports.	645 final assessment reports
# of Water Management Act (WMA) permits for sources pumping more than 100,000 gallons per day	11 WMA permits, and 7 WMA permit amendments were issued.	17 WMA permits and 8 WMA permit amendments were issued.	14 WMA permits and 5 WMA permit amendments were issued.

Trend Analysis

DRINKING WATER

From 1999 to 2004 several trends emerge in DEP's work to advance the goal of ensuring that every public water supply consistently provides water that is safe to drink. See http://www.mass.gov/dep/brp/epp/dw/dwhome.htm.

List of References of work products submitted or available

Work products

- Lead in school drinking water guidance for school officials
- Source Water Protection reports posted on the web
- In The Main- Quarterly newsletter had 22 articles to educate the PWS and consultants about DW issues.
- Drink Water Director's quarterly email to public water systems with email addresses

DEP promoted the following events

- Annual Compliance Awards Program - Governor proclamations to 30 winning systems brings awareness to the public of importance of DW.
- Theatre for Children presentations at local schools- May 3-7, 2004, held 30 school performances to teach children importance of drinking water.

Goal 2: Clean and Safe Water - Clean Water and Healthy Ecosystems

Objective

- Protect Water Quality/Assure Clean Water
- Sufficient Water for Healthy Ecosystems
- Minimize the discharge of contaminated industrial wastewater to sewers, surface waters and groundwater

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Clean Water Targets

- Set water quality standards
- Know condition of surface and ground waters
- Prevent water quality degradation
- Control pollution from point sources
- Control pollution from nonpoint sources
- Restore degraded water quality
- Submit an Integrated 310(b)/303(d) list by April 1, 2004 and an electronic update by April 1, 2005
- Submit a draft Massachusetts Comprehensive Monitoring and Assessment Strategy for surface water by June 30, 2004 and a final by September 30, 2004
- Participate in the New England Lakes and Ponds Study planning meeting during FY 04
- Continue working on TMDL Innovations project

- Set flow standards
- Know flow condition of surface waters
- Know reasons for flow impairments
- Control water withdrawals
- Prevent water flow degradation
- Restore water bodies with impaired flow

2004 Highlights in meeting goal

In 2004, DEP had several successes in advancing this goal. These included:

- Conducted physical, chemical, and biological water quality monitoring for assessment and TMDL purposes in the Merrimack, French & Quinebaug, Boston Harbor, and Cape Cod Watersheds.
- Developed and conducted a pilot program for bacteria source tracking in the Blackstone and Sudbury Watersheds
- Conducted water quality monitoring in several watersheds for nutrient criteria development.
- Conducted several water quality surveys on the Merrimack and Concord Rivers to identify potential sources of perchlorate to the Tewksbury water supply.
- Conducted several monitoring surveys with the Department of Public Health related to toxic algal blooms on Quaboag Pond.
- Developed Draft Water Quality Assessment Reports for the Millers River, Deerfield, Farmington watersheds
- Developed Final Water Quality Assessment Reports for Millers River, Islands, and Ipswich Watersheds
- Developed TMDLs for the Assabet River, Chatham Embayments, Frost Fish Creek, Muddy Creek, and Palmer River.
- Developed draft nutrient criteria development strategy.
- Developed draft statewide monitoring strategy.
- Developed draft innovations proposal for atmospheric mercury.
- Developed preliminary copper water quality criteria proposal
- Revised water quality standards for internal review

Goal 2: Clean and Safe Water - Clean Water and Healthy Ecosystems

DEP conducted these training or outreach sessions:

- Public Meetings held on Assabet TMDL and Permits; Chatham TMDL; Palmer River TMDL
- Many meetings held with EPA Region 1 on TMDL Innovations Committee
- Many meetings held with New England States through NEIWPCC on various committees including, but not limited to the following Committees: TMDL, TMDL Innovations, Water Quality Standards, Monitoring, and 305b/303d listing.

Environmental Indicators	FFY 2002	FFY 2003	FFY 2004
# and % of assessed river miles, lake acres, and estuary square miles that have water quality supporting beneficial uses, including, where applicable, for: a) fish and shellfish consumption; b) recreation; c) aquatic life support; d) drinking water supply (The reporting period is two years)[•] (indicator for 2000) (DEP reports on support of aquatic life, fish consumption, swimming, and secondary contact such as boating every two years. These items are called "uses." The same waters are not assessed each year, nor are all waters assessed each year; as such, the data should not be used to identify trends.)	***Below data is based on Preliminary DRAFT 2002 Integrated list*** **Assessed river miles,** 40% fully support their uses, 16% partially support, and 44% do not support any use. [Based on 32% of state mileage assessed. Overall -- 27% fully support, 10% partially support, 30% do not support, and 33% not assessed.] **Assessed lake acres,** 27% fully support their uses, 20% partially support, and 52% do not support any use. [Based on 80% of state acreage assessed. Overall – 25% fully support, 19% partially support, 49% do not support, and 7% not assessed.] **Assessed marine waters,** 33% fully support their uses, 11% partially support, and 55% do not support any use. [Based on only 8% of state area assessed. Overall – 33% fully support, 11% partially support, 55% do not support, and 1% not assessed.] b) **River Miles:** total assessed = 1,784. Zero miles (0%) support fish consumption (statewide advisory); 512 miles (29%) support primary contact; 670 miles (38%) support secondary contact; 798 miles (45%) support aquatic life. **Lake Acres**: total assessed = 112,618 acres. Zero acres (0%) support fish consumption (statewide advisory); 2,216 acres (2%) support primary contact;	***Below data is based on FINAL approved 2002 Integrated List*** **Assessed River miles:** 40% fully support their uses; 16% partially support; and 44% do not support any use. Overall: 9% fully support; 3.5% partially support; 10% do not support; 78% not assessed. **River Miles**: total assessed = 1,791. Zero miles (0%) support fish consumption (statewide advisory); 488 miles (27%) support primary contact; 670 miles (37%) support secondary contact; 798 miles (45%) support aquatic life. **Assessed River miles:** 40% fully support their uses; 16% partially support; and 44% do not support any use. Overall: 9% fully support; 3.5% partially support; 10% do not support; 78% not assessed. Overall: 20% fully support; 15% partially support; 40% do not support; 25% not assessed. **Lake Acres**: total assessed = 112,598 acres. Zero acres (0%) support fish consumption (statewide advisory); 2,216 acres (2%) support primary contact; 80,525 acres (71%) support secondary contact; 2,840 acres (3%) support aquatic life. **Assessed Marine Waters:** 31% fully support their uses; 10% partially support; and 59% do not	***Below data is based on Draft 2004 Integrated List*** *(note: the Department is currently converting to the new ADB data management system, as such partial support is no longer recorded. Waters either support or do not support uses under the new system)* **Assessed River miles:** 43% fully support their uses; 57 do not support any use. Overall: 10% fully support; 13% do not support; 77% are not assessed**.** **River Miles** Total Assessed = 1,872 mi. 0 miles (0%) support fish consumption (statewide advisory) 483.7 miles (26%) support primary contact 621.7 miles (33%) support secondary contact 898.3 miles (48%) support aquatic life **Lake Acres**: total assessed = 106,637 acres. 24% fully support their uses 76% not supporting their uses Overall: 17% fully support their uses 54% do not support their uses 29% not assessed Zero acres (0%) support fish consumption (statewide advisory); 3,995 acres (4%) support primary contact; 75,193 acres (71%) support secondary contact; 2,812 acres (3%) support aquatic life. **Assessed Marine Waters:** 29% fully support their uses 71 do not support any use. Overall: 3% fully support

[•] ECOS Core Performance Measure

Goal 2: Clean and Safe Water - Clean Water and Healthy Ecosystems

Environmental Indicators	FFY 2002	FFY 2003	FFY 2004
	80,525 acres (72%) support secondary contact; 2,840 acres (3%) support aquatic life. **Marine Sq. Miles:** total assessed = 221. Zero sq. mi. (0%) support fish consumption (statewide advisory); 132 sq. mi. (60%) support primary contact; 145 sq. mi. (65%) support secondary contact; 68 sq. mi. (31%) support aquatic life; 76 sq. mi. (35%) support shell fishing.	support any use. Overall: 2.5% fully support; 0.9% partially support; 5% do not support; 91.5% not assessed. **Marine Sq. Miles:** total assessed = 227 Zero sq. mi. (0%) support fish consumption (statewide advisory); 132 sq. mi. (58%) support primary contact; 145 sq. mi. (64%) support secondary contact; 68 sq. mi. (30%) support aquatic life; 77 sq. mi. (34%) support shell fishing.	6% do not support 91% not assessed. **Marine Sq. Miles:** total assessed = 241 Zero sq. mi. (0%) support fish consumption (statewide advisory); 145.1 sq. mi. (60%) support primary contact; 157.4 sq. mi. (65%) support secondary contact; 70.1 sq. mi. (29%) support aquatic life 85.6 sq. mi. (36%) support shell fishing.
# of assessed acres open, conditionally open, restricted, and closed to shell fishing (MA Division of Marine Fisheries data)	Data not yet available from the Division of Marine Fisheries.	1,442,874 acres approved; 31,721 acres combined restricted and conditionally open; 142,298 acres prohibited. (Jan. 21, 2003)	No change from last report

Goal 2: Clean and Safe Water - Clean Water and Healthy Ecosystems

Outcomes	FFY 2002	FFY 2003	FFY 2004
# and % of impaired, assessed river miles, lake acres, and estuary square miles that **a) are covered under Watershed Restoration Action Strategies, and** **b) were restored to their designated uses during the reporting period. (The reporting period is two years.)** *	a) DEP submitted action plans for the following watersheds: Boston Harbor, Cape Cod, French & Quinebaug, Merrimack, Narragansett / Mt. Hope Bay, and Parker. The action plans identify proposed actions to be taken to abate both point and non-point source water quality problems; however, we do not know how many miles of impaired segments would be covered. (The action plans are related mostly to the entire watershed.) A better measure DEP can provide is the # of miles or acres of water bodies that were covered under TMDL plans. For FFY02 those statistics are as follows: • Rivers (Bacteria) = 106 miles; • Estuaries (Bacteria) = 1.3 square miles; • Lakes (Nutrients) = 4,029 acres. b) None have been documented.	a) Individual Watershed Action Plans were not developed by DEP commencing in 2003 as DEP was switching to the new Environmental Goals Project. DEP did, however, develop non-point source action strategies for all 27 watersheds, which were provided to EPA and have been posted on the DEP web site. These strategies have been used as a tool by DEP and outside groups to identify and prioritize federal, state, and local actions for follow-up implementation. They have also been used to prioritize projects under Section 319 and NCRS' EQIP program and to track non-point source issues and actions on a segment-by-segment basis in each watershed. DEP is also evaluating other alternatives to incorporate these goals into existing documents such as our water quality assessment reports. In addition, DEP believes that a better measure is to provide the number of miles or acres of waterbodies covered under TMDL plans; for FFY03 28 lake TMDLs were developed to protect an additional 1,877 acres. b) None have been documented to date.	a) N/A – During FFY04 DEP began updating the non-point source action strategies for all 27 watersheds with a completion goal for FFY2005. DEP believes a better measure is the # of miles or acres of water bodies that were covered under TMDL plans. For FFY04 the approximate statistics are as follows: • Rivers (Bacteria) = 37.1 miles; • Estuaries (Bacteria) = 2.7 square miles; • Lakes (no additional during 2004) b) None have been documented
% of POTWs that are beneficially reusing all or a part of their biosolids and, where data exists, the % of biosolids generated that are beneficially reused*	Approximately 16% of the 134 MA POTWs beneficially reuse some or all of their sludge. Approximately 18% of the 274,571 dry tons of sludge were beneficially reused as biosolids.	Approximately 15% of the 134 Massachusetts POTWs beneficially reuse some or all of their sludge. Approximately 18% of the 274,571 dry tons of sludge were beneficially reused as biosolids.	
% of NPDES discharge permittees in compliance with permit effluent limits	Information in PCS (Permit Compliance Status) federal database.	Information in PCS (Permit Compliance Status) federal database.	
# of assessed river segments, lakes, and ponds with water quality impairments	Based upon the proposed 2002 Integrated list (not yet approved): • Rivers: 292 segments; • Lakes: 560 segments; • Marine: 150 segments.	Based upon the FINAL 2002 Integrated list: • Rivers: 294 segments; • Lakes: 578 segments; • Marine: 196 segments.	The # of impairments on the 2004 list has not been finalized therefore this data will not be available until FFY05.

Outputs	FFY 2002	FFY 2003	FFY 2004
a) % of river miles and lake acres that have been assessed for the need for fish	a) In 2002 DWM collected fish samples from twelve lakes representing 1,415 acres and two	a) In 2003 DWM collected fish samples from one lake representing 10 acres. DEP/ORS	a) In 2004 DWM collected fish samples from 3 lakes representing 517

* ECOS Core Performance Measure

Goal 2: Clean and Safe Water - Clean Water and Healthy Ecosystems

Outputs	FFY 2002	FFY 2003	FFY 2004
consumption advisories; **b) compilation of state-issued fish consumption advisory methodologies, as reported through the National Listing of Fish and Wildlife Advisories***	rivers representing approximately 13 river miles for the need for fish consumption advisories. b) See *Freshwater Fish Consumption Advisory List*, June 2002. This represents the most recent update.	collected from an additional 11 lakes representing 2,287 acres. Total: 2,297 acres b) See *Freshwater Fish Consumption Advisory List*, June 2002. This represents the most recent update.	acres and 1 river (Lowell canal system) representing 2.25 river miles. b) See *Freshwater Fish Consumption Advisory List*, April , 2004. This represents the most recent update.
The TMDL status for each state, including: **a) the number of TMDLs identified on the 1998 303(d) list that the state and EPA have committed to produce in the two year cycle;** **b) the number of TMDLs submitted by the state to EPA;** **c) the number of state-established TMDLs approved by EPA; and** **d) the number of EPA-established TMDLs. (This cumulative measure would be jointly reported by EPA and the state.) ***	a) 81 for FFY01&02 b) 77 c) 93 d) 20 in a joint effort	a) 40 b) 28 c) 28 d) 0	a) 35 [1, 2] b) In FFY04 - 43 c) In FFY04 - 27 d) 0[1] [1] Number does not include joint effort by EPA and MA to develop a statewide bacteria TMDL which may address up to 366 bacteria impairments. [2] Number also does not include MA Innovative Project to move about 90 lakes to category 4b because of atmospheric mercury.
DEP water quality assessment reports	➢ Final Watershed Assessments for the Merrimack, Narragansett/Mt. Hope Bay, French & Quinebaug, and Cape Cod watersheds. ➢ Draft assessment for the Boston Harbor Watershed.	➢ Final Watershed Assessment published for Cape Cod, Boston Harbor, and Shawsheen basins. ➢ Draft assessment reports completed for Shawsheen, Buzzards Bay, and Islands. ➢ Additional reports under development: Millers River, Deerfield, Ipswich, and Farmington.	In FFY04 ➢ Final Watershed Assessment published for Millers, Islands, Ipswich, Shawsheen, Buzzards Bay basins. ➢ Draft assessment reports completed for Millers, Deerfield, Ipswich, and Farmington. ➢ Additional reports under development: Westfield, Concord, Taunton, South Coastal
DEP Watershed Action Plans	Completed 2001 Watershed Status Report and Actions Taken for the Boston Harbor, Cape Cod, French & Quinebaug, Merrimack, Narragansett/Mt. Hope Bay and Parker River Watersheds. Watershed Action Plans will not developed by DEP commencing in 2003 as DEP was switching to the new Environmental Goals Project.	Individual Watershed Action Plans were not developed by DEP commencing in 2003 as DEP was switching to the new Environmental Goals Project. DEP did, however, develop non-point source action strategies for all 27 watersheds, which were provided to EPA and have been posted on the DEP web site. These strategies have been used as a tool by DEP and outside groups to identify and prioritize federal, state, and local actions for follow-up implementation. They have also been used to prioritize projects under Section 319 and NCRS' EQIP program and to track non-point source issues and actions on a segment-by-segment basis in each watershed. DEP is also evaluating other alternatives to incorporate these goals into existing documents such as our water quality assessment	N/A – During FFY04 DEP began updating the non-point source action strategies for all 27 watersheds with a completion goal for FFY2005. DEP believes a better measure is the # of miles or acres of water bodies that were covered under TMDL plans. For FFY04 the approximate statistics are as follows: • Rivers (Bacteria) = 37.1 miles; • Estuaries (Bacteria) = 2.7 square miles; • Lakes (no additional during 2004)

* ECOS Core Performance Measure

Goal 2: Clean and Safe Water - Clean Water and Healthy Ecosystems

Outputs	FFY 2002	FFY 2003	FFY 2004
		reports. In addition, DEP believes that a better measure is to provide the number of miles or acres of waterbodies covered under TMDL plans; for FFY03 28 lake TMDLs were developed to protect an additional 1,877 acres.	
305(b) electronic update	➢ Electronic Update of new integrated list was submitted. New list takes place of 305(b) report.	➢ Geo-reference updates submitted. Final electronic files updates being compiled.	➢ Pending approval of 2004 Integrated List.
303(d) update	➢ New Integrated list developed and submitted to EPA for review on October 1, 2002.	➢ Final 2002 Integrated list approved 10/1/03.	➢ Draft List submitted April 2004. Final pending.
TMDLs **In 2004 -** **DEP will submit for EPA approval 15 TMDLs with expected dates of completion as follows:** • **5 Chatham nutrient TMDLs – June 2004** • **4 segments Assabet TMDL – April 2004** • **2 estuary bacteria TMDLs – June 2004** • **1 final Kickemuit bacteria TMDL (EPA and RI lead) – depends upon EPA and RI** • **3 Palmer River bacteria TMDLs – May 2004** **DEP will continue involvement with the following TMDLs where data collection has commenced or where other TMDL related activities have been initiated:** • **Popponnesset Bay** • **Waquoit Bay** • **Great, Green and Bourne Estuaries** • **Oyster Pond, West Falmouth Harbor, Sesachacha Pond** • **Shasheen Headwaters** • **Nashua River** • **Upper and Lower Charles nutrient TMDL in collaboration with MWRA and EPA**	**The following TMDLs were revised and re-submitted to EPA during FFY02**: *Connecticut Lakes:* Aldrich Lake East, Aldrich Lake West, Leverett Pond, Lake Warner, Loon Pond, Lake Wyola *Chicopee Lakes:* Browning Pond, Minechoag Pond, Spectacle Pond, Wickaboag Pond, Long Pond, Mona Lake, Sugden Reservoir *Neponset River Bacteria (20 segments)* *Shawsheen River Bacteria: (16 Segments* *Others:* Little Harbor Cohasset, Blackstone River, Lake Boon, Indian Lake, Lake Quinsigamond, Flint Pond, Salisbury Pond, Leesville Pond. The following TMDLs were also submitted during FFY02 *French River Watershed lakes:* Buffumville Lake, Cedar Meadow Pond, Dresser Hill Pond, Dutton Pond, Gore Pond, Granite Reservoir, Greenville Pond, Hudson Pond, Jones Pond, Larner Pond, Lowes Pond, McKinstry Pond, New Pond, Peter Pond, Pierpoint Meadow Pond, Pikes Pond, Robinson Pond, Rochdale Pond, Shepherd Pond, Texas Pond, Mosquito (Tobins) Pond, and Wallis Pond. Total submitted FFY02=77 Total Approved FFY02 = 93	**The following TMDLs were finalized and approved by EPA in FFY03**: Millers Lakes: Beaver Flowage Pd., Bents Pond, Bourn-Hadley Pd., Brazell Pd., Cowee Pd., Davenport Pd., Lake Denison, Depot Pd., Lake Ellis, Greenwood Pd. (Westminister), Greenwood Pd. (Templeton), Hilchey Pd., Lower Naukeag Lake, Minott Pd. (south), Minott Pd., Lake Monomonac, Parker Pd., Ramsdall Pd., Reservoir #1 (Athol), Reservoir #2 (Phillipston/Athol), Riceville Pd., South Athol Pd., Stoddard Pd., Wallace Pd., Ward Pond, Whites Mill Pd., Whitney Pd., Wrights Reservoir. Work also continued on the following TMDLs: Assabet River (nutrients/low D.O., Nashua River (nutrients), Chatham embayments nutrients (5), Frost Fish Creek (bacteria), Muddy Creek (bacteria), Palmer River (bacteria), Pomponessett Bay (nutrients), Waquoit Bay (nutrients) Quaboag Pd. (nutrients), Shawsheen Headwaters (stormwater), Kickemuit (bacteria), Oyster Harbor (bacteria), W. Falmouth Harbor (bacteria), Nantucket Harbor (bacteria), Sesachacha Pd. (bacteria). As of the end of this reporting period TMDLs have been completed for approximately 10% (6,059 acres) of lakes; 9.2% (127 miles) of rivers; and 0.6% (1.26 sq.mi.) of marine waters listed in category 5 of our 2002 integrated list. Additional work is underway for another 1.7% (1,051 acres) of the lakes; 4.9% (67.7 miles) of river; and 5.5% (11.54 sq. mi.) of	**The following TMDLs were finalized and approved by EPA in FFY04:** ➢ Assabet River nutrient TMDL (14) ➢ Palmer River bacteria TMDL (13) Draft TMDLs were developed for the following TMDLs: ➢ Shawsheen Headwaters (1) ➢ Kickemuit River (1) ➢ Frost Fish Creek bacteria (1) ➢ Muddy Creek Bacteria (1) ➢ Chatham embayments (12) ➢ Popponessett Bay (1) TMDL and tech reports under development: ➢ Oyster Pond bacteria ➢ Great Pond – nitrogen ➢ Green Pond – nitrogen ➢ Bournes Pond- nitrogen ➢ Quashnet River, Jehu, Hamblin Pond – nitrogen ➢ Little Pond – nitrogen ➢ Three Bays – nitrogen ➢ Wareham River Estuary – nitrogen ➢ Nantucket Harbor – bacteria ➢ Sesachacha – bacteria ➢ Quaboag/South Pond – phosphorous ➢ Nashua River – phosphorous ➢ Upper and Lower Charles - phosphorous As of the end of FFY04 TMDLs have been developed for approximately 10% (6,209 acres) of lakes; 10.2% (141 miles) of rivers; and 1.6% (3.37 sq.mi.) of marine waters listed in category 5 of our 2002 integrated list.

Goal 2: Clean and Safe Water - Clean Water and Healthy Ecosystems

Outputs	FFY 2002	FFY 2003	FFY 2004
		marine waters. Total Submitted FFY03 = 28 Total Approved FFY03 = 28	
Submit Draft Comprehensive Water Monitoring and Assessment Strategy by 6/30/04 Final Comprehensive Water Monitoring and Assessment Strategy by 9/30/04			**Draft:** submitted 6/30/04 **Final:** submitted 12/04
Participate in the New England Lakes and Ponds Study planning meetings during FY04.			**On-going**
Implement the Assessment Database System (ADB) and being evaluating use of STORET.			**ADB upgrade ongoing. Storet on hold until completion of ADB and MA DEP data management project to update our existing data management systems to be able to upload data into ADB and Storet.**

Note: All outputs are based on calendar year, except for 303(d) update and 305(b) electronic update, which are done every two federal fiscal years.

Trend Analysis

DISCHARGE VIOLATIONS
From 1999 to 2003 several trends emerge in DEP's work to advance the goal of reducing, eliminating, and/or controlling both point and non-point discharges to surface and groundwater. See http://www.mass.gov/dep/brp/epp/dw/dwhome.htm.

List of References or Work Products Submitted or Available

Work Products DEP published the following documents:

In FFY04

- Draft and Final Statewide Monitoring Strategy
- Draft Nutrient Criteria Development Project
- Draft and Final Millers River Water Quality Assessment Report (WQAR)
- Overview of 2004 Monitoring Program
- Final Islands WQAR
- Draft and Final Assabet River nutrient TMDL
- Draft Deerfield WQAR
- Draft Chatham Nitrogen TMDL
- Final Ipswich WQAR
- Draft Farmington WQAR
- Draft Mercury Innovations Proposal
- Draft Frost Fish Creek Bacteria TMDL
- Draft Muddy Creek Bacteria TMDL'
- Preliminary Site-Specific Copper criteria approach
- Final Buzzards Bay WQAR
- Final Palmer River bacteria TMDL

Goal 2: Clean and Safe Water - Intact and Functioning Wetlands

Objective

- **Intact functioning wetlands**

Targets

Know extent of wetlands loss
- Identify causes of wetlands loss
- Prevent losses by addressing most significant causes
- Control losses through efficient and effective permitting
- Work toward protection of wetland functions

Environmental Indicators and other Performance Measures

Environmental Indicators	FFY 2002	FFY 2003	FFY 2004
Acres of wetlands in Massachusetts maintained over time	Of the 81% of the state that has been mapped and digitized, approximately 465,944 acres are inland and coastal wetlands (not including open water areas and their associated resources).	Of the 85% of the state that has been mapped and digitized, approximately 488,954 acres are inland and coastal wetlands (not including open water areas and their associated resources).	Of the 90% of the state that has been mapped and digitized, approximately 517,716 acres are inland and coastal wetlands (not including open water areas and their associated resources
Areal extent, density, and distance to the outer edge of plant growth for several eelgrass (*Zostera marina*) aquatic beds in selected estuaries	Change detection has continued to complete all but the most western portions of Buzzards Bay to the R.I border. Complete statewide change data will be available in Summer 2003.	Change detection has been completed for the entire state. An historic mapping interpretation of the 1951 coverage is being completed and the entire dataset (1951, 1995, 2001) will be available on the Massachusetts GIS distribution system by March 2004.	A pilot project has been initiated with NOAA to develop an optical model to assist the development of eelgrass restoration targets for impacted coastal watersheds and embayments.

Outcomes		FFY 2002	FFY 2003	FFY 2004
Acres of wetlands lost (through permitting process and estimate of acres lost from illegal fill) compared to:	**Acres of wetlands restored or replicated through the permitting**	Commencement of a new wetlands change procedure utilizing the wetlands datalayer that is currently being completed analyzes data from aerial photographs taken in 1993 or 1995 (depending on location) and compares them with aerial photographs taken in 2000. Initial draft results for the first 15% of the state (portions of Plymouth and Bristol counties) have been developed.	Wetlands change procedure has been completed for the eastern third of the state (Northeast and Southeast Regions). Accurate change data has been quantified for each community within these regions. Over 700 acres of previously mapped wetlands have been altered. A 104b3-funded project to research the local permit history of a significant portion of these wetlands change sites is indicating that over 50% of the wetland change covered in this permit research project are un-permitted.	Wetlands change procedure has been completed for over 72% of the state (including everthing but the western region). Approximately 840 acreas of wetlands change has been detected by this project. The resulting data has been used to re-focus particular directions of the Wetlands Permitting Program.
	Acres of wetlands restored or replicated due to enforcement	Data not available	Data not available	

Outputs	FFY 2002	FFY 2003	FFY 2004
Report on progress of statewide mapping of wetlands and coastal eelgrass	➢ Compilation of statewide wetlands GIS data layer is 81% complete, and ➢ Wetland interpretation and fieldwork was completed in	➢ Compilation of statewide wetlands GIS data layer is 85% complete. ➢ Wetland interpretation and fieldwork was completed in the	The statewide wetlands datalayer is over 90% complete. Wetlands interpretation and

Goal 2: Clean and Safe Water - Intact and Functioning Wetlands

Outputs	FFY 2002	FFY 2003	FFY 2004
	Worcester County. ➢ Wetlands conservancy maps were distributed to conservation commissions in Bristol and portions of Hampden counties. ➢ The eelgrass change detection project completed all of Buzzard's Bay except for the most western portion from New Bedford to RI border. Entire project will be completed in the Spring 2003 season and the Statewide Change data will be available Summer 2003. ➢ Commencement of a new wetlands change procedure utilizing the wetlands datalayer currently being completed. Initial draft results for the first 15% of the state (portions of Plymouth and Bristol counties) have been developed.	following watersheds: Connecticut, Millers, Quinebaug, and French. ➢ Wetlands Conservancy Program maps were distributed to conservation commissions in the following watersheds: Blackstone, French, Quinebaug, and portions of the Connecticut and Chicopee. ➢ The eelgrass change detection project completed all of the state. ➢ Wetlands Change Program has completed over 50% of the state. All of the state east of the Connecticut River will be completed by March 2004.	fieldwork was completed in the Deerfield, Westfield and Farminton Watersheds. Wetlands Conservancy Maps were distributed to over 72% of the communities in the state. The eelgrass mapping project has selected six pilot embayments in which to develop a predictive optical model for the establishment of restoration targets. Wetlands Change Program has completed over 72% of the state.

Trend Analysis

WETLANDS

- Compilation of statewide wetlands GIS data layer is over 90% complete.
- Wetland interpretation and fieldwork was completed in the following watersheds: Deerfield, Westfield and Farmington. Wetlands Conservancy Program maps (including both wetlands data and the wetlands change data) were distributed to conservation commissions in all but the western region.
- The eelgrass mapping project is working cooperatively with NOAA to acquire the necessary water quality data required to develop a predictive optical water quality model to develop realistic eelgrass targets for restoration.
- Analysis of wetlands change has been completed for over 72% of the state.

List of References of work products submitted or available

Work Products DEP published the following documents:

- Guidance for Aquatic Plant Management in Lakes and Ponds, April 2004.
- Wetlands Enforcement Manual: A Guide to Effective Compliance with the Massachusetts Wetlands Protection Act Regulations, November 2004.

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems - Strategic Priorities

The 2004 Performance Partnership Agreement included Strategic Priorities that the Department is pursuing. The following is a summary of progress on those priorities during 2004.

Massachusetts Military Reservation: Perchlorate in Groundwater

FFY 2004-2005 Outputs:

- Issue MCP regulation revisions package and promulgate regulations in 2004
  Status: A public hearing draft was issued in October 2004. Promulgation is expected in 2005.
- Establish MCL for drinking water
  Status: A public hearing draft is being prepared and is expected to be issued in 2005.
- Review and update Massachusetts standards as needed when EPA standards are established 2006-08.
  Status: Not applicable.

Brownfields Redevelopment

FFY2004-2005 Outputs:

- Promote and assist in the use of the Special Project Designation (SPD), a tool that provides increased flexibility on cleanup deadlines for certain types of projects
  Status: Proposed amendments to the SPD provisions were issued in October 2004. Promulgation is expected in 2005.
- Provide technical outreach to project proponents on regulatory issues, and promote the use of financial and liability incentives
  Status: DEP Boston and regional offices provided technical assistance to more than 150 projects, many of which also leveraged funding from EPA and other state and federal sources.
- Conduct four EPA-funded brownfields site assessments using state contractors
  Status: Site assessments were conducted in Westfield, Boston, Springfield, and Middleborough.
- Work with state partners toward developing an inventory of brownfields sites
  Status: The Massachusetts Executive Office of Environmental Affairs and DEP teamed to identify communities with the largest number of 21E sites and target them for proactive outreach. In FY 2004, more than 50 sites have been inventoried. This effort continues in FY 2005.
- Provide assistance to communities receiving funding through the EPA Cleanup Grant Program
  Status: DEP provided assistance to Taunton and Worcester.
- Continue to provide assistance to communities that have received funding through the Brownfields Cleanup Revolving Loan Fund Program.
  Status: DEP provided assistance to Greenfield, Lawrence, and communities represented by the Mystic Valley Development Commission in the Telecom City project.
- Participate on the review panel for the Brownfields Redevelopment Access to Capital Program
  Status: At the request of MassBusiness, DEP participated on this review panel with the MA Department of Business Technology and the Office of the Attorney General to develop proposal criteria and select an insurance provider for the renewed contract for the Brownfields Redevelopment Access to Capital (BRAC) insurance program. Proposals were submitted by three insurance carriers.
- Target proactive outreach to 15 municipalities
  Status: DEP targeted proactive outreach to more than 25 communities, including those that received EPA grant funding.
- Assist the AGO in reviewing 15 Covenant Not to Sue applications
  Status: DEP assisted the AGO in reviewing over 20 CNTS applications.
- Promote the redevelopment of priority lien sites
  Status: DEP marketed 10 priority lien sites for redevelopment.
- Conduct pre-permit meetings in regions for brownfields project proponents as needed

Status: DEP regional offices conducted pre-permit meetings for brownfields project proponents, as necessary.

- Organize and speak at public outreach forums
  Status: The DEP Brownfields Coordinator spoke at more than 20 state and federal brownfields conferences.
- Implement up to 10 brownfields site assessments
  Status: DEP assisted EOEA in performing state funded (Environmental Justice) at 2 sites.

Beyond ERP

FFY 2004 – 2005 Outputs:

- Assessment and program oversight streamlining on six sectors: solid waste transfer station, biotech facilities, small engines and turbines (distributed generators), mercury discharges from dental offices, stage II gasoline facilities, and photo processors. These projects are being done as part of a "design/build strategy" to help inform the overall design of the Beyond ERP initiative. (Project work complete and implementation of results begins July 2004)
- Identification of "most risky" and "all other" groups by end of 2004
- Development of a schedule for assessing the different sectors or groups of BWP sources by end of 2004, with implementation thereafter
- Development of the overall program structure by end of 2004 with implementation beginning thereafter.

Beyond ERP Status:

Targeted Groups

- **Solid Waste Transfer Stations Outputs: solid waste transfer stations – strategy completed and approved, regulation changes under development**
- **Biotech: draft AQ HW and IWW regulations complete;**
- **Engines and turbines- draft regulations complete**
- **Dental Hg- 74% participation rate in voluntary program, draft regulations complete**
- **Stage II- comprehensive assessment and compliance strategy developed and initiated**
- **Photo processors- draft regulations under development**
- **39 new "targeted groups" identified for work in FFY 05-06**

Creating Beyond ERP Structure:

- **Universe of BWP sources categorized into "Direct Involvement", "Report Review" and "No Routine Involvement" groups.**
- **Routine oversight defined for each direct involvement source type.**
- **New inspection types defined to facilitate assessments and other forms of oversight**
- **Bureau reorganized and staff reassigned to reassignments completed to create bureau wide management, processing, and compliance assurance for all routine facility reporting (including ERP certifications)/**
- **Beyond ERP Implementation Team established**
- **Targeted groups tracking system developed and implemented**

RCRA Authorization Checklists

FFY 2004 – 2005 Outputs:

- DEP will respond to public hearing comments on Checklists C1 – C3 and will promulgate the regulations by Spring of 2004

Status: Regulations promulgated 2/27/04

- EPA has a Federal Register Notice proposing to authorize C1 – C3, offer grant flexibility for the RCRA Laboratories XL Project, and extend Project XL for 3 years. Assuming that these actions are finalized DEP will implement the program accordingly
  Status: On-going
- DEP will devote the resources available for "reauthorization" to active participation in the "Functional Equivalency Work Group", deferring effort on the remaining checklists until the Work Group has completed its task. The group's charter has been established and the recommendations are to be completed by August 2004.
  Status: Workgroup recommendations are completed and under review by EPA senior management.
- DEP will continue negotiations with EPA on additional RCRA authorization packages (including Corrective Action) or alternative processes. By September 30, 2004, the two Agencies will agree on a) what actions will be pursued; b) necessary decisions and implementation steps; and c) a schedule for FY 05 and beyond for development and implementation of the agreed upon course of action. This will include decisions on Corrective Action as well as Checklists C4-C9 to be submitted by August 1, to update the Base Program beyond the 1990 Federal Regulations. Negotiations on additional RCRA authorization was completed on schedule;
  Status: DEP has agreed to develop regulations and to seek authorization for RCRA Corrective Action in FFY05; DEP will initiate development of necessary regulations to seek RCRA authorization for a selected set of 17 non-HSWA regulation groups in FFY06.

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems
Solid Waste & Recycling

Objectives

- Reduce Solid Waste and Promote Recycling
- Prevent contamination of land and water by ensuring that Solid Waste Management Facilities are properly designed, constructed, operated and maintained, and closed
- Prevent contamination of land and water by ensuring that hazardous wastes are managed safely

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Targets

- By the year 2010 achieve 70% waste reduction (which includes both source reduction and recycling), including:
  - 60% municipal solid waste (MSW) waste reduction, and
  - 88% construction and demolition (C&D) waste reduction
- Divert solid and hazardous waste from disposal through reuse and recycling
- Manage solid and hazardous waste streams in a way, which minimizes risk to public health.
- Ensure the sound closure of unlined landfills.
- Assure the clean closure and cleanup of licensed and interim-status hazardous waste facilities.
- Target compliance rates to be determined through Beyond ERP

2004 Highlights in meeting goal

In 2004, DEP had several successes in advancing this goal. These included:

In FFY04, DEP published for public comment draft regulatory revisions to 310 CMR 19.000 (Solid Waste Facility Regulations), along with three companion guidance documents. DEP continued to permit and oversee solid waste facilities and operations. In addition, DEP received a total of $3.5 million in funding to support a wide range of recycling and waste reduction programs and projects. In light of state and local funding and staffing cuts, DEP focused strategies that seek to increase efficiency, reduce costs, leverage other resources, and build partnerships to continue to reduce waste. DEP also began assessing and updating Master Plan implementation strategies for the coming years. FY04 highlights are listed below:

- **Product Stewardship:** Worked with the carpet industry and other states to implement the Carpet America Recovery (CARE) agreement; secured a $50,000 Electronics Industry Alliance grant to collect data on a residential electronics collection model with Massachusetts Goodwill facilities; and worked with Bottle Bill stakeholders to develop recommendations to support revisions to the Bottle Bill regulations.
- **Source Reduction:** Assisted 30 municipalities considering Pay As You Throw programs, including awarding 12 technical assistance grants; continued to award home compost bin grants and hold workshops; and facilitated surplus equipment exchanges for municipalities.
- **Hazardous Products Reduction:** Discontinued grants for hazardous products collection equipment due to funding cuts; supported development of regional collection programs; provided six school chemical management grants and supported other efforts to remove mercury from schools and hospitals; funded workshops on reducing use of pesticides and fertilizers.
- **Commercial Recycling and Composting:** Expanded the Supermarkets Recycling Organics Initiative to more than 50 stores; developed a food waste recycling brochure for haulers and fact sheet; established Earth's 911 Business Website and Recycling Locator with Earth's 911 and Staples, Inc.; and established business recycling partnerships in nine municipalities; held the Fourth Massachusetts Organics Recycling Summit which was attended by over 160

generators of food residuals, compost facility operators, haulers, consultants, and government officials.

- **Residential Recycling and Composting:** Funded 22 technical assistance projects for either individual municipalities or regional groups, that benefited over 1,120,000 residents total; provided targeted recycling and composting equipment grants; held Annual Waste Reduction forum; updated PAYT Implementation Guide and posted on the DEP web site; and held extensive workshops and training sessions.
- **Market Development:** Awarded four Recycling Industry Reimbursement Credit (RIRC) grants for more than $150,000, leveraging an additional $270,000 in matching funds for development of organics and C&D processing capacity; awarded a $185,000 loan through the Recycling Loan Fund to a composting business; and developed a web page for recycling businesses.
- **Construction and Demolition Debris (C&D):** Proposed regulations and guidance for a waste ban on asphalt, brick and concrete, wood and metal; worked with the C&D Subcommittee and Work Groups on C&D processing, market development, and other issues; supported a clean wood separation study; completed a wood market analysis; and worked with gypsum manufacturers and other stakeholders to increase recycling of gypsum wallboard.
- **Solid Waste Regulatory and Policy Development:** Published for public comment draft revisions to 310 CMR 19.000, the solid waste permitting regulations, and accompanying guidance on waste bans, facility impact assessment and beneficial use determinations; assessed transfer station risks and developed recommendations to improve DEP's oversight; developed standards for co-compost materials; and developed draft guidance on managing hydrogen sulfide emissions and risks at landfills.
- **Solid Waste Permitting, Compliance and Enforcement:** Completed 508 inspections, including 100 waste ban inspections; and took 85 enforcement actions resulting in over $258,000 in penalties, and 42 Higher Level Enforcement Actions, and Issued 249 permits in FFY04, including 46 Initial Site Assessments, 36 Beneficial Use Determinations, 17 corrective action designs, oversaw three inactive landfill closures and (in calendar year 04) issued seven landfill permits for more than 1.3 million tons of annual disposal capacity;;
- **Waste Planning:** Continued to gather annual recycling, composting, and disposal data; began development of electronic reporting of compost reports, recycling processor surveys, and other solid waste facility reports for calendar year 2004; continued to coordinate activities of the Solid Waste Advisory Committee and subcommittees; and began re-evaluating the Beyond 2000 Master Plan.

Environmental Indicators and other Performance Measures

Environmental Indicators	FFY 2002	FFY 2003	FFY 2004
At this time, no environmental indicators exist for these objectives. Many states, EPA, and organizations such as the Association of State and Territorial Waste Management Officials (ASTWMO) are working to develop appropriate indicators.			

Outcomes	FFY 2002	FFY 2003	FY 2004
% of hazardous waste managed at Treatment, Storage, and Disposal	100%	100%	100%

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems
Solid Waste & Recycling

Outcomes	FFY 2002	FFY 2003	FY 2004
Facilities (TSDFs) with approved controls in place‡			
Annual generation of hazardous waste (# of tons) safely shipped	In 1999:43,681 tons shipped	In 2001: 55,862 tons shipped	60,567
# of RCRA notifiers who report releases under state Superfund regulations	Data not available	Data not available	Data not available
# of new sites created due to the mismanagement of hazardous waste	Data not available	Data not available	Data not available
Weight or volume of household hazardous wastes collected and reused, recycled or properly disposed		13,670 tons in calendar year 2002	58,840 tons in CY 2003 (beginning in CY 2003, DEP began gathering more complete data on one-day collection events)
Total (# of tons) municipal solid waste generated (calendar year)	CY2001: 8,130,000 tons	CY2002: 8,350,000 tons	CY2003: 8,460,000 tons
Annual amount (# of tons) of solid waste diverted relative to the amount generated (calendar year)	CY2001: All Waste: 6,450,000 tons= 50% MSW Only: 2,780,000 tons= 34%	CY2002: All Waste: 6,790,000 tons= 51% MSW Only: 2,610,000 tons= 31%	CY 2003: All Waste: 6,860,000 tons= 52% MSW Only: 2,870,000 tons= 34%
Amount of solid waste disposed in landfills, resource recovery facilities relative to the total generated in-state (calendar year)	CY2001 All Waste: 6,340,000 tons = 50% MSW Only: 5,350,000 tons= 66%	**CY2002:** All Waste: 6,450,000 tons = 49% MSW Only: 5,700,000 tons = 69%	**CY 2003:** All Waste: 6,340,000 tons =48% MSW Only: 5,590,000 tons =66%
Volume of leachate collected at operating landfills (calendar year)	2002: 141 million gallons.	data not yet available	data not yet available
# of unlined landfills properly closed with impermeable caps	In CY02 26.965 acres were capped at active landfills	In CY03 27.95 acres were capped at active landfills	data not yet available
# of landfill sites authorized for reuse for open space and/or recreation	In FFY02, a total of 3 landfill sites were authorized for reuse.	In FFY03, a total of 8 landfill sites were authorized for reuse.	In FFY04, a total of 7 landfill sites were authorized for reuse.

Outputs	FFY 2002	FFY 2003	FY2004
Amount of solid waste diverted from the waste stream through Bottle Bill redemptions	76,368 tons in 2001	76,257 tons in 2002	78.097 tons in 2003
Regulations	See Regulation Section	See Regulation Section	See Regulation Section
# of inspections			508 for solid waste 103 Hazardous Waste +610 multi media inspections that included HW

‡ Outcomes marked by this symbol are Core Performance Measures.

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems
Solid Waste & Recycling

Outputs	FFY 2002	FFY 2003	FY2004
# of enforcement actions			42 SW Higher Level Enforcement Actions 34 HW Higher Level Enforcement actions +201 ERP and 28 multi media which could have involved HW
Issued ➢ 303 Hazardous Waste permits ➢ 17 Industrial Wastewater permits, and ➢ 165 Solid Waste permits, other than Beneficial Use Determinations.\	Issued: ➢ 253 Hazardous Waste permits ➢ 17 Industrial Wastewater permits, and ➢ 117 Solid Waste permits, other than Beneficial Use Determinations.	Issued: ➢ 303 Hazardous Waste permits ➢ 17 Industrial Wastewater permits, and ➢ 165 Solid Waste permits, other than Beneficial Use Determinations ➢	Issued" ➢ 285 Hazardous Waste Permits ➢ 28 Industrial Wastewater Permits ➢ 207 Solid Waste prmits (other than Beneficial Use Determinations
# of Beneficial Use Determinations	32	37	37
Grant dollars distributed	Distributed in calendar year 2002 ➢ $3.1 million in recycling equipment and consumer education grants* ➢ $1.375 million in grant assistance to redemption centers* ➢ $.5 million in assistance to business recycling and research* ➢ $1.65 million in waste reduction public education and outreach to schools* ➢ $1 million in grants to recycling related businesses under the Recycling Industry Reimbursement Credit Grant Program*. ➢ $1 million in waste reduction pilot projects and research grants*.	Distributed in calendar year 2003 ➢ $2.95 million in recycling equipment and consumer education grants ➢ $0 in grant assistance to redemption centers* ➢ $120,000 in assistance to business recycling and research* ➢ $160,000 in waste reduction public education and outreach ➢ $180,000 in Recycling Industry Reimbursement Credit ➢ $250,000 in waste reduction research and pilots	Distributed in calendar year 2004 $1 million in recycling equipment and consumer education grants $750,000 in grant assistance to redemption centers $142,000 in assistance to business recycling and research 153,500 in Recycling Industry Reimbursement Credit $100, 000 in waste reduction research and pilots
# Of consent orders for landfill closure and capping	In 1994, there were 105 landfills in operation and targeted for closure. Since then, all of these landfills have been closed and capped under terms of a consent order for each landfill.		

Trend Analysis

MUNICIPAL RECYCLING GRANTS
In State FY 2004 DEP and EOEA distributed $1 million for a total of over $14 million in grants since 1998.

In State FY 2003, DEP and EOEA distributed $1.3 million in payments to 200 municipalities under the Municipal Recycling Incentive Program (MRIP), which provides performance-based grants to municipalities that demonstrate an increasing commitment to recycling over time. Since 1998, 270 communities have received over $13 million in MRIP payments. In its most recent six-month phase, municipalities achieved a 2% tonnage increase compared with the preceding year. Municipalities that have participated continually since 1998 have increased their recycled tonnage by 26 %.

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems
Solid Waste & Recycling

In State FY 2002, DEP and EOEA awarded $13 million in municipal recycling grants. Since 1990, DEP and EOEA have awarded over $24 million in recycling grants to a total of 259 municipalities. These grants include money for equipment for general recycling, computer and television recycling, composting, household hazardous products collection equipment, new Pay-As-You-Throw programs, and recycling education materials.

SOLID WASTE MANAGEMENT
Massachusetts overall waste reduction rate decreased from 57% in 2001 to 55% in 2002. The calendar year 2003 waste reduction rate is not yet available. The state's goal is to reach a 70 % waste reduction rate by the year 2010.

In 2002, total waste generation increased 3 percent from 2001. This compares to a 1 percent increase from 2000 to 2001. The amount of waste disposed in 2002 increased 2 percent from 2001, after decreasing for the previous two years. Overall recycling increased from 46% in 2001 to 47% in 2002, due to a 6% increase in C&D recycling. The state's MSW recycling rate (excluding home composting) dropped from 34 % in 2001 to 31% in 2002. Although not yet final, initial 2003 data show the MSW recycling tonnage and rate increasing back to 2001 levels.

HAZARDOUS WASTE MANAGEMENT
Between 1997 and 2001, the quantity of RCRA hazardous waste shipped from Large Quantity Generators (LQGs) in Massachusetts decreased from 85,534 tons shipped in 1997 to 55,862 tons in 2001, or a 35% reduction . Between 2001 and 2003, the quantity of hazardous waste shipped by LQGs in Massachusetts increase from 55,862 tons in 2001 to 60,567 tons in 2003 or an increase of 8.4%."

In CY 1997 , 484.2 thousand tons tons of RCRA hazardous waste and waste oil were recycled. In CY2003 this number increased to 545,000 tons. Of this total 533,000 was oil contaminated soil (500,000 tons) and used oil (33,000 tons). The remaining 12,000 tons were RCRA hazardous waste.

LANDFILL CLOSURE AND CAPPING
All unlined landfills in MA that were active in 1991 or after have been properly capped.

Capping is particularly important for landfills without liners, because the cap minimizes the creation of leachate that can potentially contaminate the groundwater. The number of acres of unlined cells at active landfills that have been properly capped has declined precipitously from approximately 151 and 183 in CY99 and CY00 to 13 acres in CY01. This decline is due to a DEP initiative to identify and ensure the proper closure of these sites. The number has essentially reached zero as all these sites have been addressed. No new uncapped, unlined cells will be created because all active cells at operating landfills in Massachusetts are required to have liners.

Operating lined landfills have active cells that are still receiving waste as well as cells that have been completely filled, and need to be properly closed and capped. The 28 acres capped in 2003 mostly reflect closure activity of specific cells at these active lined landfill sites. There is also an ongoing initiative to identify, assess and properly close old (pre 1991) landfills as resources and priorities permit.

LANDFILL REUSE
From 1999 through 2004, 294 Landfills were authorized for reuse
The number of landfills authorized for reuse has remained relatively constant at 4 – 7 over the past four years., with seven post-closure uses approved in 2004. We expect this number to increase significantly in the future due to the new innovative public/private partnership we have created to facilitate the conversion of closed landfills to useful recreation or open space.

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems
Solid Waste & Recycling

LAND DISPOSAL FACILITY CORRECTIVE ACTIONS
DEP initiated environmental indicator reviews for 1 facility and coordinated with EPA on the review of 2 facilitities in FFY04. Both "human health exposure" and "groundwater migration" controlled criteria were evaluated. In addition,a stabilization measure was reviewed and determined to be an appropriate actions at 1 licensed TSD.

- Number of Facilities where CA [i.e. stabilization measures]approved/ implemented: 1
- #of Facilities where Imminent Hazards are being evaluated or controlled: 0
- Environmental Indicators determined:
  - Human Exposure Controlled: 0
  - GW Migration Controlled: 0

List of References of work products submitted or available

Regulations

The following policies and regulations were promulgated in 2004:

- RCRA authorization and Class A Regulations - Feb 2004

Other Work Products

Solid Waste:

- 11th Annual Waste Reduction Forum: New Directions in a Changing Climate Event Information
- 2001 Progress Report on the Beyond 2000 Solid Waste Master Plan
- 2005 Municipal Recycling Grant Information and Instructions
- 5/22/04 Composting Workshop
- Active Solid Waste Landfills in Massachusetts. June 2004.
- BWP fact sheet on treated wood to link to new ORS Q&A on associated health risks
- Cambridge and Douglas C&D case studies
- Case Studies: Construction and Demolition Waste Reduction
- Catch Basin Cleanings fact sheet
- City/Town Recycling Rates, 1994-2002
- Clarke Corp. C&D case study
- Discussion Document: Proposed Modifications To The Solid Waste Management Facility Regulations, 310 Cmr 19.000, May 24, 2004
- Draft Interim Guidance Document for Beneficial Use Determination Regulations, 310 CMR 19.060, March 18,2004
- Fourth Organics Recycling Summit :Links in the Food Chain, Connections Among , Generators, Haulers, and Processors Thursday, April 22, 2004, Holiday Inn, Boxborough, Massachusetts
- Guidance for Conducting Facility Impact Assessment for Solid Waste Facility Site Assignment and Permitting, in Support of 310 CMR 16.00 & 19.000
- Guide for Consumers to the Bottle Bill Summarizes Massachusetts's Beverage Container Law including guidance for consumers on cleaning, handling, and redeeming beverage containers. December 2003.
- Healthy Lawn & Landscape Workshop calendar items
- Listing of Inactive or Closed Solid Waste Landfills in Massachusetts. June 2004.
- Massachusetts Sample C&D Waste Plan
- Massachusetts Towns and Cities With DARP Status

- MIT Media Lab C&D case study
- Motivating People to Reduce Waste page
- Municipal Recycling Rates FY1994 - CY2002
- Municipal Solid Waste/Recycling Program Coordinators Names and phone numbers of municipal and regional solid waste and recycling program coordinators listed by municipality or region's name. February 2003
- New Construction and Demolition Debris Web page
- New commercial/institutional composting Web Page and content
- Pay-As-You-Throw: An Implementation Guide for Solid Waste Unit-Based Pricing Programs
- Policy on Regulation of Operations that Handle Either PIF (Post-Incinerator Ferrous) or Muni-ferrous (Pre-Incinerator Ferrous)
- Recycling Education Assistance in Public Schools (REAPS) contractors (list)
- Recycling, Composting, Bottle Bill, Surplus Property and PAYT files
- Recycling/Solid Waste Consultants on State Contract (list)
- Resource Management Contracts
- Surplus Equipment Wish List for Municipalities
- The Massachusetts Recycling Economy
- Third Annual Progress Report on the Beyond 2000 Solid Waste Master Plan
- Waste Ban Reporting Focus Group: Meeting Materials: Draft summary data trends from waste ban facility reporting, prepared for September 17, 2003, focus group meeting with disposal facilities. September 2003.
- Waste Reduction Forum information
- Watch Your Waste - Ten Ways to be a Trash Terminator This is a bookmark-sized, downloadable file that contains easy-to-follow tips everyone can incorporate into daily activities to reduce the amount of waste needing disposal. It also provides a list of Web sites that offer additional information about local recycling programs, junk mail reduction, and alternatives to toxic home and garden products

RCRA

- A list of licensed precious metal transporters with contact and license information. October 2003 edition. The Fact Sheet "Important Information in Choosing a Hazardous Waste Transporter" is included
- EPA authorized the proposed Massachusetts Hazardous Waste Management Program revisions in March 2004.
- How to choose Massachusetts licensed hazardous waste transporters - alphabetical by Company name. The list now includes transporters that are also transporters/marketers of used oil fuel. October 2003 edition.
- Joint EPA/DEP memo: Clarification on the Applicability of the Satellite Accumulation Rule to Laboratories. September 2004.
- Massachusetts Hazardous Waste Regulations: 310 CMR 30.000
- Response to Comments on Proposed Amendments to the Massachusetts Hazardous Waste Regulations: 310 CMR 30.000
- Summary Of Requirements For Small Quantity Generators Of Hazardous Waste n June 2004.
- Summary of requirements for SQGs, “Little Things Mean a Lot” video loan/purchase information

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems – Reduce Toxics Use and Release

Objective

- Decrease use and release of toxic substances
  - TURA Program
  - Beyond Environmental Results Program (ERP)
  - Minimize atmospheric deposition of mercury in Massachusetts by reducing emissions and releases

Targets

- Decrease the use of toxic substances
- Decrease the toxicity of all waste streams
- Decrease the amount of solid and hazardous waste generated.
- Continue to reduce toxics use and releases, target to be determined through Beyond ERP
- Reduce the quantity of toxic byproducts generated per unit of production
- 75% reduction in mercury emissions/releases by 2010
- Eventual elimination of anthropogenic mercury use, releases/emissions
- Substantially reduce the use and toxicity of hazardous consumer products
- Provide convenient hazardous product collection services to all residents and very small quantity hazardous waste generators by 2010
- Achieve at least 85% reduction in mercury emissions from power plants
  - Mercury emissions form municipal waste combustors will decrease further due to pollution prevention, implementation of material separation plans, and new controls to be installed in 2003, 2004 and at two Municipal waste combustors. Reduction in power plant mercury emissions is expected upon installation of new S02 and NOx controls at large power plants an upon promulgation and implementation of proposed power plant mercury regulations.

2004 Highlights in meeting goal

In 2004, DEP had several successes in advancing this goal. These included:

- Achieved statewide mercury emissions reductions of more than 60 percent.
- Reduced production-adjusted toxic byproducts by 67% since 1990 and by 9 % from 2000 to 2002.
- Reduced the amount of toxics shipped in product by 14% from 2000 to 2002, including adjusting for a 10% decrease in production.
- Reduced production-adjusted on-site releases to the environment by 21% from 2000 to 2002.
- After achieving convenient, comprehensive hazardous products collection access for 85% of the state's residents, this access level decreased to 65 % in 2003. This decrease was largely due to state and local government budget cuts which resulted in hazardous products collection programs being scaled back or eliminated.

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems – Reduce Toxics Use and Release

Environmental Indicators and other Performance Measures

Environmental Indicators	FFY 2002	FFY 2003	FFY 2004
The pounds of pollution reduced in response to enforcement actions and the percentage of total reductions achieved through enforcement actions	Data not available	Data not available	Data not available
Trends in emissions of toxic air pollutants (TRI supplemented by TURA)*	Air releases of hazardous air pollutants decreased by 62% from 1990 to 2001, from 15.7 to 5.9 million pounds	Air releases of hazardous air pollutants decreased by 70% from 1990 to 2002, from 15.7 4.7 million pounds	Data mot available
Fresh water fish tissue concentrations of mercury	0.38 mg/kg from 22 locations 397 fish	0.48 mg/kg from 18 locations 574 fish	.89 mg /kg from 24 locations

Outcomes	FFY 2002	FFY 2003	FY 2004
% of non-product outputs reduced for TURA reporters	Reductions CY 2000 – 2001 =13%	Reductions CY2000 – C20002 =18%	CY 2003 not yet available
% of non-product outputs reduced for TURA reporters with waste normalized for production	Reductions CY 2000 – 2001 = 9% adjusted for production -	Reductions CY2000 – C20002 =10% adjusted for prduction	CY 2003 not yet available
Quantity (# of lbs.) of toxics used and generated as waste by-products (calendar year)	CY 2001 Use: 1064 million pounds By product: 107 million pounds	CY 2002, Use:989 million pounds Byproduct: 102 million pounds	CY 2003 not yet available
For TURA reporters, the % of production units reflecting reductions from P2	Data not available	Data not available	Data not available

Outputs	FFY 2002	FFY 2003	
Technical assistance efforts	Technical assistance efforts are indicated with*	Technical assistance efforts are indicated with*	
# of Toxics Use Reduction Trainings regarding Reporting Guidance	9 Trainings*	6 trainings in 2002*	Held four trainings in 2003 and participated in fve more hands-on reporting workshops
# of ERP Sector Workshops Held	Held 1 ERP Workshop/Celebration for dry cleaners, photo processors, printers and boilers. *	**None**	**None,** Met with the Dry Cleaning Industry to determine the causes of non compliance with certain regulations
# of ERP Companies in the System	Over 95% of ERP companies are in the system including about: 1,100 printers, 650 dry cleaners, and 500 photo processors	Approximately 90% of ERP companies are in the system: 800 printers, 600 drycleaners, 500 photo processors	94% of the companies known as of the spring filed their certifications in the fall (580 Dry cleaners, 477 photo processors, and 691 printers
# of new ERP industrial sectors developed	One new sector developed – industrial wastewater holding tanks Regulations for Industrial Wastewater Sewer Redesigned drafted. Implementation parked because of state budget cuts.	None Six new sectors are under consideration	Several new sectors under consideration
# and % of facilities that adopt EMS in response to DEP enforcement action	New measure in FFY04	New measure in FFY04	In FFY04 EMS were included in 9 out of 450 higher level enforcement actions (2%)F

* ECOS Core Performance Measure

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems – Reduce Toxics Use and Release

Outputs	FFY 2002	FFY 2003	
# and % of facilities that adopt SEPs in response to DEP enforcement action	New measure in FFY04	New measure in FFY04	In FFY04 SEPs were included in 26 out of 450 higher level enforcement actions (6%)
Publication of TURA Information Release	Published 2000 Toxics Use Reduction Information Release	Published 2001 Toxics Use Reduction Information Release	Published 2002 Toxics Use Reduction Information Release
# of mercury fresh water fish advisories/concentration of mercury in fish	14 water bodies were tested, and are being evaluated for possible advisories. As of October 2002, the MA DPH had issued 92 mercury fish advisories for water bodies.	18 water bodies were tested and are being evaluated for possible advisories, which will be issued in spring of 2004.	26 water bodies were tested resulting in an additional 23 water body advisories. As of the summer of 2004 88 water body advisories were in place
Amount of mercury diverted from the waste stream	Data will be available in spring of 2004	Data not available	Data not available
Stack tests results from sources emitting mercury and subject to testing requirements	.28 tons emitted from 7 municipal waste combustor facilities in CY2002	Data is not available	Data is not available

Trend Analysis

MERCURY WASTE DIVERSION TRENDS

In Calendar year 2000 DEP launched aggressive effort to divert mercury from the waste streams. In the first two years of the effort, 3,597 pounds of mercury have been collected and recycled or properly disposed of.

- In CY 2000 1,645 pounds of mercury were collected through the MA Dental Society Mercury Collection Program. This effort involved cleaning out old stocks of mercury amalgam that were no longer needed due to changes in amalgam technology. It is expected that mercury collections will continue, but the yield of mercury amalgam will be much less, since the larger stockpiles were cleared out in CY 2000.
- In CY 2002 14 TURA Filers reported using 5,933 pounds of mercury, shipping 4,677 pounds, generating byproduct or waste of 1,266 pounds. Filers reported using 1,765 lbs of mercury compounds, 140 lbs shipped in products and 1,625 lbs generated or waste byproduct. CY 2000 was the first year TURA mercury reporting thresholds had been lowered to 10 lbs.
- In CY 2000 1.9 pounds of mercury were collected through the Thermostat Recycling Corporation's voluntary thermostat recycling program for professional plumbing and electrical supply contractors that sell directly to contractors. An additional 2.5 pounds were collected through this program in CY 2001. The program is expected to continue to grow and divert increasing numbers of thermostats in the coming years.
- In CY 2001, Municipal Waste Combustors were required to implement material separation plans pursuant to 310 CMR 7.08 (7). Implementation of these plans resulted in diverting from the waste stream 1,853.6 pounds of mercury contained in thermometers, switches, thermostats, fluorescent lamps and bulbs, and other miscellaneous products. Absent this requirement, much of this mercury would have ended up as air pollution. This program will continue in coming years.
- In CY2001 125 communities collected mercury containing items for diversion from the solid waste stream. Some of these collection efforts were sponsored by the Municipal Waste Combustors and contributed to the 1,853.6 pounds reduction cited above.
- In CY 2001 DEP supported the School Clean-out Pilot Projects through which 586 pounds of mercury were collected from 17 schools. This was in the form of jars of elemental mercury, thermometers, and barometers. An average of 14 pounds of mercury was collected per participating high school. Further school clean-out programs are planned and will be implemented in the future as funds allow.
- In CY2001, DEP supported the Keep Mercury from Rising Pharmacy Thermometer Exchange which collected 168 lbs of mercury

Since then

- DEP worked with hospitals through onsite audits to educate them and to implement policy changes concerning solid, hazardous, and infectious waste management and pollution prevention measures. In particular, DEP strongly encouraged hospitals to reduce the use of mercury and PVC containing products, and institute safe collection, labeling, and recycling practices for unneeded mercury and PVC containing products.
- DEP worked with the Massachusetts Dental Society and dental offices to develop and implement a plan for dental offices to install amalgam separators, recycle all mercury- containing materials, and adopt best management practices voluntarily. Unless 50% of MA dentists adopt these measures by January 30, 2005, DEP will implement the measures by regulation.
- DEP worked to promote thermostat collection programs through the support of NEWMOA and coordination with municipal waste combustion facilities and utilities resulting in the collection of more than 3,000 thermostats. In addition, DEP is participating in a Northeast Waste Management Officials Association (NEWMOA)/EPA project to develop and promote business fluorescent lamp recycling.
- DEP provided a technical assistance grant to the South Central Recycling Association of Massachusetts for mercury audits, clean-outs and purchase of mercury-free replacement products at East Longmeadow High School and the Southwick School District.
- DEP continued to perform oversight of municipal waste combustor Material Separation Plans. The mercury product diversion efforts made through these plans included:
    - a mercury awareness campaign;
    - thermometer swaps that captured more than 20,000 mercury thermometers;
    - outreach to contractors on thermostat collection that yielded more than 3,000 thermostats;
    - reimbursements to municipal collection programs that collected 400,000 linear feet of fluorescent lamps and other mercury containing devices (and elemental mercury) estimated to contain between 250 and 300 kilograms of mercury;
- Adoption of 26 municipal ordinances banning the disposal of mercury bearing items;
- Continued DEP staffing of the Mercury Hotline, answering calls from residents about proper disposal of mercury, mercury spills, etc

AIR TOXICS EMISSIONS TRENDS FOR LARGE QUANTITY TOXICS USERS
Emissions of Hazardous Air Pollutants (HAPs) from large quantity toxics users declined by 70% between 1990 and 2002. Industrial facilities that employ more than 10 FTEs are required to report their HAP emissions for any HAP for which their use exceeds either 10,000 pounds a year or 25,000 pounds a year, depending on the way it is used in the manufacturing process. Thus these reductions reflect the behavior of the industrial facilities that use the greatest quantities of the individual HAPs.

Much of the reduction is due to pollution prevention activities. Facilities have substituted non-toxic cleaning processes for solvent-based processes using compounds such as toluene, tricholorethane and trichlorethylene. Ethylene Glycol is no longer being used for deicing, and the use of CFCs for cleaning, propellants, and cooling is also being phased out.

The reductions have tapered off as more and more companies have completed the substitution process. As this happens emissions of HAPs may begin to increase if production increases at Massachusetts's industrial facilities.

BYPRODUCT GENERATION TRENDS FOR LARGE QUANTITY TOXICS USERS
Byproduct is a measure of the efficiency with which companies use toxic chemicals. The byproduct is the amount of a given chemical that is "wasted" during the production process: that is, it is neither converted into another chemical during production (such as using one chemical to manufacture another compound at a chemical manufacturing plant) or is not incorporated in the product – as copper might be incorporated into a pot, or as a solvent might be incorporated into a can of paint. Some byproduct gets destroyed through pollution control

equipment, but that which pollution control technology does not destroy leaves the site as emissions, hazardous waste, or discharges.

Changes in byproduct generation, normalized for changes in production levels, is a good measure of pollution prevention techniques, such as input substitution, improved production processes, or production equipment operation and maintenance.

Between 1990 and 2002, after normalizing for changes in production levels, the Core Group of TURA facilities reduced their byproduct generation by 67%, showing that these facilities used pollution prevention to increase efficiency and reduce waste.

For all facilities for the period between 2000 and 2002 byproduct dropped by 18%. This decline was 10%a when the data was normalized for the decrease in production that occurred over that time period.

List of References of work products submitted or available

Regulations

- Mercury standards for large power plants - 7.29 regulations - May 2004

Other Work Products

The following work products were produced in 2004:

TURA:

- 2002 Toxics Use Reduction Information Release
- 2002 Toxics Use Reduction Information Release - Fact Sheet
- 2004 Toxics Use Reduction Plan Update Guidance
- June 2004 Toxics Use Reporting Instructions
- New TURA Web site
- Reporting Policy For Waste To Energy Facilities
- Under The Toxics Use Reduction Act
- TURA Plan Update Guidance

MERCURY:

- Final Report Fish Mercury Levels In Northeastern Massachusetts Lakes December 2003
- Amalgam Mercury Recyclers
- Amalgam Mercury Separator Vendors
- Dental Amalgam “about” page and fact sheets
- Proper Management of Dental Mercury
- Recommended Practices for Handling and Recycling Amalgam and Mercury Wastes

ERP:

Contact info for ERP training DVD

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems – RCRA Corrective Action Sites

Objective

- **Oversee Clean-ups at RCRA Corrective Action Sites**

Targets

- Assure the clean closure and cleanup of licensed and interim-status hazardous waste facilities.
- Target compliance rates to be determined through Beyond ERP

2004 Highlights in meeting goal

In 2004, DEP had several successes in advancing this goal. These included:

- DEP made progress towards CA on a number of fronts in 2004. DEP met with EPA monthly for 5 months to discuss the aspects of becoming authorized for Corrective Action regulations. This resulted in a commitment by DEP in FFY04 to become authorized with two years [2007].
- On a site specific level DEP made progress towards achieving the EI's at 3 facilitities each of which required the gathering of additional data to evaluate the HE Indicator. These are anticipated to be completed in 2005.
- At Handy&Harmon in North Attleboro DEP has been working with the AG's office in promoting the redevelopment of this Brownfields site into Retail Business use. This will involve the clean-up of portions of the site and the construction of a CAMU in 2005.

Environmental Indicators and other Performance Measures

Environmental Indicators	FFY 2002	FFY 2003	FY 2004
Groundwater releases controlled (RCRA related)*	➢ 4 -- high priority TSD	➢ 0	➢ **0**
Activities targeted at controlling or preventing the spread of contamination, preventing human exposure to such releases, and reducing the risk to human exposure and the environment* as measured by: • **% of 24 listed corrective action sites at which assessment is complete (Goal 100% by '08)** • **% of 24 listed corrective action sites at which human health exposure controlled* (Goal95% by '08)** • **% of 24 listed corrective action sites at which groundwater contamin-ation controls in place (Goal 80% by '08)**			**Coordinated the establishment of a new 2008 GPRA Baseline with EPA .**

* ECOS Core Performance Measure

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems – RCRA Corrective Action Sites

Environmental Indicators	FFY 2002	FFY 2003	FY 2004
• **% of 24 listed corrective action sites for which corrective remedy decision made,** • **% of 24 listed corrective action sites at which corrective action decision implemented *(Goal 20% by '08)**			

Outcomes	FFY 2002	FFY 2003	
Activities targeted at controlling or preventing the spread of contamination, preventing human exposure to such releases, and reducing the risk to human exposure and the environment‡	➢ 1 facility (TSDF) closure plan approval and closure certification ➢ 1 Immediate Response Action taken to remove LNAPL from Groundwater ➢ 1 Hazardous Waste Land Disposal Facility continued hydraulic containment ➢ 2 Stabilization Measures conducted to remove solvent contaminated soils	➢ 1 oversaw state contractor removal of over 500 barrels and containers of hw from an abandoned TSDF ➢ 1 RCRA Non Notifier HW disposal ➢ 1 Hazardous Waste Land Disposal Facility continued hydraulic containment and corrective action plan was approved.	➢ 1 - Revised Stabilization Measure reviewed/approved for General Chemical in June 2004.
Human exposures controlled•	➢ 3 – high priority TSDs	➢ 2 – high priority TSDs	➢ Conducted Wyman – Gordon EI file review, HE Indicator <u>not</u> met. Coordinated with EPA and its Contractor to conduct investigation of 2 facilities [Walton & Lonsbury , Leavens Awards] for EI's
Resource Conservation and Recovery Act (RCRA) Corrective Action Sites (areas) cleaned up*	➢ 3 Stabilization Measures approved 2 sm's implemented 1 pending NPDES discharge permit approval)	➢ 1 Oversaw final removal of hazardous waste abandoned at HW, TSDF	➢ 1– Revised Stabilization Measure reviewed/ approved for General Chemical in June 2004. ➢ Coordinating the redevelopment of inactive Handy & Harmon Facility with the AG's Office, DEP BWSC and EPA to allow sale of property and construction of Retail
% of hazardous waste managed at Treatment, Storage, and Disposal Facilities (TSDFs) with approved controls in place*	100%	100%	100%
# of hazardous waste facilities where corrective actions have been implemented	IN FFY02 corrective action implemented at 2 TSDFs	In FFY03, state oversaw closure: 1 Lagoon	None

* ECOS Core Performance Measure

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems – RCRA Corrective Action Sites

Outputs	FFY 2002	FFY 2003	FY 2004
# of high priority RCRA facilities with human exposure controlled*	3 facilities	2 facilities	0 facilities
# of high priority RCRA facilities with groundwater releases controlled*	4 facilities	0 facilities	0 facilities

Trend Analysis

From 2003 to 2004 the work to advance the goal of ensuring the sound closure and cleanup of contaminated sites at licensed and interim-status hazardous waste treatment, storage and disposal facilities has remained fairly stable. Assessment and clean up work has continued at closed TSDFs and hazardous waste land disposal facilities, The number of new sites subject to RCRA has also declined sharply since the advent of the program. However , workload is expected to increase in order to meet the new 2008 GPRA Baseline goals for "CA remedy selection" and " CA construction complete" as several new state lead sites were added to the list in FFY04..

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems
Waste Site Clean Up Overview

Objective

- Present an Overview of the Waste Site Cleanup Universe

	FY 2002	FY 2003	FY 2004	Program to Date[1]
Number of sites in BWSC's database [2]	26,783	28,708	30,550	30,550
Number of sites in BWSC's database that are closed (e.g., Response Action Outcome, NFA)	15,835 (59.1%)	17,768 (61.9%)	20,281 (66.4%)	20,281 (66.4%)
Number of sites in BWSC's database that are open	10,948	10,940	10,269	10,269
Number of notifications[3]	2,006	1,925	1,842	23,850
- number of 2-hour notifications (e.g., sudden releases, spills)	993	1,013	1,017	11,263
- number of 72-hour notifications (e.g., LUSTs)	440	327	305	5,931
- number of 120-day notifications (e.g., historic releases)	573	579	520	6,441
Number of Response Action Outcomes (RAOs) submitted[4]	2,001	1,933	2,513	20,281
Number of RAOs with Activity and Use Limitations (AULs)	583	193	200	976

Trend Analysis

Since mid-2002, the number of RAPs submitted has exceeded the number of annual notifications. Since then the percentage of sites in the database that are closed has increased from more than 59 percent to nearly 66.5 percent. For notifications and RAOs submitted during the post-1993 era, in 2003 and 2004, RAO submittals bested the number of notifications by 8 and 671, respectively. The number of Activity and Use Limitations that are submitted with RAOs has declined significantly

List of References of Work Products Available

Regulations

- BWSC staff worked toward implementing the MCP streamlining regulations promulgated in June 2003.

[1] Program-to-Date values (through FY04) are provided where available and when applicable.
[2] These figures represent the number of notifications submitted from the beginning of the Waste Site Cleanup program in 1985. Other data below are a subset of that total, and include only notifications received under the revised cleanup program, which began in late 1993.
[3] Includes just the post-1993 notifications under the revised regulations, which established the 2-hr, 72-hr and 120-day notification categories.
[4] Parties have 6 years from the date of release notification to achieve an RAO (absent an extension), so only a portion of releases in a calendar year achieves RAO in the same year.

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems
Waste Site Clean Up Overview

Other Work Products Submitted or Available

- July 2003 Homeowner's Certification Form
- July 2003 Fact Sheet: Waste Site Cleanup Streamlining and Fee Regulatory Changes
- May 2004 Statistics on Cleaning Waste Sites in Massachusetts
- May 2004 Master Q&A 1993 – 2004, revised
- May 2004 The Massachusetts Waste Site Cleanup Program – The Basics, revised
- May 2004 Massachusetts' Approach to Waste Site Cleanup: Chapter 21E and the MCP, revised
- May 2004 Public Involvement in Site Cleanups, revised
- May 2004 A Massachusetts Property Owners Guide to Hiring a Licensed Site Professional, revised
- May 2004 Overview of Downgradient Property Status, revised
- May 2004 MCP Adequately Regulated Fact Sheets, revised
- June 2004 List of Properties with Activity and Use Limitations

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems
Maximize Risk Reduction

Objective

- **Maximize Risk Reduction at Waste Sites**
  Work to ensure that PRPs achieve a compliance rate of at least 75 percent for Immediate Response Action (IRA) submittal requirements, measured one year after discovery of the condition requiring the IRA.

Targets

- Ensure Implementation of Mandatory Risk Reduction Measures
- Oversee and Perform Emergency Response Activities
- Address Serious Risks Using Public Funds with State Contractors
- Triage
- Provide Direct Oversight of Response Actions at the Most Complex Sites

2004 highlights in meeting goal

In FY 2004, DEP was successful in advancing this goal:

Each regional office participated in a pilot program as part of the urban non-responder project to decrease the number of long-term non-compliers. The strategy involved notifying the PRPs that unless they took steps immediately to come into compliance, DEP would place a lien on the offending property and mobilize our contractors to initiate the remediation. At the end of the pilot term, all 13 PRPs had either begun the cleanup work or had hired LSPs. The regions agreed to employ this effective strategy in the future.

Environmental Indicators and other Performance Measures

	FY2002	FY2003	FY2004	Program to Date[5]
Ensure that PRPs achieve a compliance rate of at least 75 percent for Immediate Response Action (IRA) submittal requirements, measured one year after discovery of the condition requiring the IRA.	N/C	N/C	91%	N/A
Number of RAMs/IRAs conducted	2,068	1,956	1,817	24,436
Number of sites at which DEP took response actions	121	102	95	N/A
Amount DEP spent on response actions	$7,236,465	$6,107,829	$4,574,284	N/A
Number of RAOs submitted in the same year as notification received [6]	1276	1285	1149	21,472
Number of LUST cleanups initiated	95	89	94	N/A
Number of LUST cleanups completed	132	225	339	N/A
Number of enforcement actions [7]	631	812	825	5,123

[5] Program-to-Date values (through FY04) are provided where available and when applicable.
[6] Approximately 5 percent more reach a liability endpoint via DPS and ROS.

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems
Maximize Risk Reduction

	FY2002	FY2003	FY2004	Program to Date[5]
- following 2-hour notifications	146	175	198	1,353
- following 72-hour notifications	133	191	195	1,289
- following 120-day notifications	151	197	178	962

Trend Analysis

Despite a continuing decline in the number of BWSC staff, the bureau maintained and enhanced its resources committed to taking enforcement activity.

List of References of Work Products Available

Regulations

- BWSC staff worked toward implementing the MCP streamlining regulations promulgated in June 2003

Other Work Products Submitted or Available

The following guidance, policies and publications published in FY2004 are available on-line at http://Mass.Gov/dep/bwsc/bwschome.htm.

November 2003	Edited Form BWSC-107a, the Numerical Ranking System Scoresheet
February 2004	Asbestos in Soil Policy
March 2004	Best Management Practices for Controlling Exposure to Soil during the Development of Rail Trails
May 2004	Tips for Maintaining Your Home Heating System, revised
May 2004	Managing Spills of Oil and Hazardous Material: Information for Municipalities, revised
May 2004	Heating Oil Delivery Lines: A Homeowners's Guide to Preventing Leaks, revised
May 2004	A Guide for Oil Companies: Preventing Costly Spills During Heating Oil Deliveries, revised
May 2004	Removing Your Underground Heating Oil Tank, revised
May 2004	Risk Characterization and Evaluation Fact Sheet, revised

[7] The total number of enforcement actions includes those for pre-1993 sites in addition to the 2-hr, 72-hr and 120-day notification categories listed.

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems
Increase Rate and Quality of Clean-ups

Objective

- **Increase the rate of privatized clean-ups**
  Work to ensure that Response Action Outcome or Remedy Operation Status statements are submitted within 6 years of release notification for at least 85 percent of sites

Targets

- Enforce Against Parties Not Performing Cleanups
- Streamline and Maintain Compliance Tracking Systems
- Encourage Deadline Compliance by collecting Annual Compliance Fees

2004 highlights in meeting goal

In 2004, DEP had several successes in advancing this goal:

Each regional office participated in a pilot program as part of the urban non-responder project to decrease the number of long-term non-compliers. The strategy involved notifying the PRPs that unless they took steps immediately to come into compliance, DEP would place a lien on the offending property and mobilize our contractors to initiate the remediation. At the end of the pilot term, all 13 PRPs had either begun the cleanup work or had hired LSPs. The regions agreed to employ this effective strategy in the future.

The objective of having 85 percent of sites achieve RAOs or ROS within 6 years of notification was reached in essence, given the fact that less than a dozen sites out of approximately 1,500 account of the 3 percent difference.

Environmental Indicators and other Performance Measures

	FY 2002 notifications in 1996	**FY 2003** notifications in 1997	**FY 2004** notifications in 1998	**Program to Date** [8]
Work to ensure that Response Action Outcome or Remedy Operation Status statements are submitted within 6 years of release notification for at least 85 percent of sites	N/A	N/A	82%	N/A
Number of sites with RAOs by the 6-year deadline	1,694	1,694	1,639	17,700
Average duration to reach RAO [9]				
- following 2-hour notifications	260 d	314 d	303 d	211 d
- following 72-hour notifications	2.0 yr	2.7 yr	3.0 yr	1.4 yr
- following 120-day notifications	2.0 yr	2.2 yr	2.2 yr	1.5 yr

[8] Program-to-Date values (through FY04) are provided where available and when applicable.
[9] These values include the default Tier ID sites

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems
Increase Rate and Quality of Clean-ups

	FY 2002 Notifications in 1996	**FY 2003** Notifications in 1997	**FY 2004** Notifications in 1998	**Program to Date** [10]
Range of duration to reach RAO (5th to 95th percentile)				
- following 2-hour notifications	24 d – 3.5 yr	22 d – 4.5 yr	11 d – 4.6 yr	28 d – 2.4 yr
- following 72-hour notifications	50 d – 6.6 yr	55 d – 8.4 yr	61 d – 9 yr	49 d – 5.6 yr
- following 120-day notifications[11]	0 d – 6.3 yr	0 d – 7.2 yr	0 d – 7.8 yr	0 d – 5.4 yr
Percent reduction in the number of Tier ID sites since FY2000 (sites at which private parties have not conducted response actions).	13%	14%	16%	NA
Number of LSPs registered in e-DEP	N/A	N/A	19	19
Number of BWSC e-DEP submittals	N/A	N/A	76	76

Trend Analysis

BWSC reduced the number of non-complying sites through the use of the threats to file liens and mobilize DEP contractors. The bureau also instituted a comprehensive program that allow LSPs/PRPs to access and deliver BWSC forms and submittals electronically. The result: a 16 percent reduction in the number of Tier 1D sites

List of References of Work Products Available

Regulations

- BWSC staff worked toward implementing the MCP streamlining regulations promulgated in June 2003

Other Work Products Submitted or Available

The following guidance, policies and publications published in FY2004 are available on-line at http://Mass.Gov/dep/bwsc/bwschome.htm.

July and August 2003	Availability of Updated Forms in downloadable format for traditional (paper) submission
September 2003	Availability of Updated Transmittal Forms for eDEP online submission
November 2003	Updated Permits and Transmittal Forms must be submitted online; earlier versions will no longer be accepted
November 2003	Availability of Updated Permits and Transmittal Forms for online submission
March 2004	Revised BWSC 115 Downgradient Property Status Transmittal Form

[10] Program-to-Date values (through FY04) are provided where available and when applicable.
[11] The 5th percentile value, 0 days, indicates that the RAO was submitted on the same day as the notification.

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems
Increase Rate and Quality of Clean-ups

Objective

- **Ensure the Quality of Cleanup at Waste Sites**
  - Work to ensure that the number of sites receiving comprehensive compliance reviews or other dispositive compliance and enforcement follow-up, is at least equal to the number of sites recommended for such follow-up as the result of audits.

Targets

- Maintain Compliance Checks/Inspections for Privatized Cleanups
- Conduct Enforcement to Address Noncompliance with MCP Performance Standards
- Ensure that Policies and Regulations Promote Program Goals
- Provide Direct Oversight for Federal Sites

2004 highlights in meeting goal

In 2004, DEP had several successes in advancing this goal.

The number of sites that exit the program by the 6-year deadline remained at a nearly constant level over the past three years because of use of anniversary letters and other tools to encourage timely compliance.

Environmental Indicators and other Performance Measures

	FY2002	FY2003	FY2004	Program to Date [12]
Work to ensure that the number of sites receiving comprehensive compliance reviews or other dispositive compliance and enforcement follow-up, is at least equal to the number of sites recommended for such follow-up as the result of audits.	NA	NA	8 % backlog	8% backlog
Number of site audits conducted[13]				
- Level 1 audits	1,022	1,987	2,255	NA
- Level 2 audits	252	199	221	NA
Number of audit and enforcement report findings articles written for publication in the LSPA News	10	5	8	NA
Number of audit case study training classes offered to LSPs	16	6	6	NA
Number of DEP-taught classes offered (excluding audit case studies)	11	0	0	NA
Number of targeted/random comprehensive audits	136 / 72	150 / 46	95 / 36	NA
Number of compliance inspections	1,387	1,245	1,400	NA

[12] Program-to-Date values (through FY04) are provided where available and when applicable.
[13] FY02 and FY03 values for the Level 1 and Level 2 audits were derived using a different methodology (counting "sites audited") and may undercount the number of "site audits" conducted by approximately 2 percent.

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems
Increase Rate and Quality of Clean-ups

Number of higher level enforcement actions	217	159	217	NA
Number of LSPs and other environmental professionals attending DEP training	1,330	230	240	NA
Number of meetings with the LSPA Board	5	6	4	NA
Number of final or draft policies, guidance, fact sheets, and Q&As issued or revised	10	9	36	NA

Trend Analysis

Despite the loss of BWSC staff, BWSC redeployed its resources to ensure that the audit and enforcement programs maintained their momentum. The results for FY 2004 show a significant increase in the total number of audits, compliance inspections, and higher level enforcement actions conducted since FY 2002. This redeployment, however, resulted in a slump in most of our outreach efforts: training efforts and contact with the LSP community decreased over recent years. The number of written communications did increase, because the June 2003 streamlining regulations required that existing documents be updated to reflect those changes.

List of References of Work Products Available

Regulations

- BWSC staff worked toward implementing the MCP streamlining regulations promulgated in June 2003

Other Work Products Submitted or Available

July 2003	Data Enhancement FAQ
August 2003	Updated version (3.1) of the QA/QC Guidelines for the Acquisition and Reporting of Analytical Data
August 2003	Public Comment Draft: Revised Final Method for the Determination of Volatile Petroleum Hydrocarbons (VPH)
September 2003	Modification to the EPH Method - Approved Extraction Procedures
September 2003	DRAFT Conceptual Proposal for Managing Asbestos in Soil
January 2004	Revised Hazardous Waste Transporter Fee Guidance
January 2004	Revised Homeowner Oil Spill Cleanup Guide
February 2004	Revised Public Comment Draft: Final Method for the Determination of Extractable Petroleum Hydrocarbons (EPH)
May 2004	Final Method for the Determination of Extractable Petroleum Hydrocarbons (EPH)
June 2004	Compendium of Analytical Methods (CAM)

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems
Brownfields

Objective

- **Facilitate the Restoration and Redevelopment of Brownfield Properties**
  - Work to assist communities by implementing up to 4 brownfields site assessments (subject to funding)
  - Incorporate into a newly developed database brownfields inventories generated by 20 municipalities

Targets

- Identify Brownfields Projects for Program Assistance
- Implement Brownfields Cooperative Agreement
- The targets described in "**Increase the rate and quality of privatized clean-ups"** above, apply equally to the rate of cleanup and opportunities for redevelopment of brownfields sites

2004 highlights in meeting goal

In 2004, DEP had several successes in advancing this goal:

- Assisted in reviewing 20 CNTS applications
- Provided technical assistance to over 350 projects
- Marketed 10 priority lien sites for redevelopment
- Updated website and written material

Environmental Indicators and other Performance Measures

	FY 2002	FY 2003	FY 2004
Work to assist communities by implementing up to 4 brownfields site assessments (subject to funding)	4	4	4
Incorporate into a newly developed database brownfields inventories generated by 20 municipalities	N/A	N/A	15
Number of cost recovery/priority lien sites where redevelopment was promoted	N/A	N/A	10
Number of public forums where DEP staff was a participant or speaker	N/A	N/A	25
Number of meetings held with regional coordinators	N/A	N/A	6
Number of state/federal partner meetings lead	N/A	N/A	12
Number of sites funded through UBSA/EJ that were provided with project management	N/A	8	2
Number of communities assisted that received EPA Cleanup Grants	N/A	N/A	2
Number of communities provided with proactive outreach	N/A	N/A	25
Number of communities assisted that received Brownfields Cleanup Revolving Loan Fund money	N/A	N/A	4

Goal 3: Preserve and Restore the Land
Goal 4: Healthy Communities and Ecosystems
Brownfields

	FY 2002	FY 2003	FY 2004
Number of brownfields project proponents that received assistance	N/A	N/A	60
Number of EDAs provided with technical assistance	N/A	N/A	45
Number of non-EDAs provided with technical assistance	N/A	N/A	10
Number of projects funded by other federal or state agencies that received technical assistance	N/A	N/A	25
Number of letters provided to public entities requesting assessment and cleanup grant funding	N/A	N/A	25
Number of Covenant Not to Sue applications DEP staff reviewed for the Attorney General's Office	N/A	N/A	20
Number of referrals accomplished to other state and federal programs	N/A	N/A	50

Trend Analysis

DEP continues to provide significant technical outreach to brownfields project proponents through the Boston and regional offices, as well as through website and written material and presentations. Strong coordination continues between federal and state brownfields partner agencies on brownfields projects and policy. Through this partnership, the state has identified areas to augment the state and national programs and has developed draft legislative proposals. A recently formed State Chapter of the National Brownfields Association is drawing an increased membership base. The state continues to look for new ways to work with municipalities and other entities in developing brownfields inventories in hopes of further progressing toward developing a comprehensive state-wide inventory.

List of References of Work Products Available

Regulations	• BWSC staff worked toward implementing the MCP streamlining regulations promulgated in June 2003
Other Work Products Submitted or Available	January 2004 New expanded Brownfields Page on DEP's website The work products described in Waste Sites Operational Goal #2 apply equally to the rate of cleanup and opportunities for redevelopment of brownfields sites.

Trends for Inspections and Penalties

DEP uses a variety of tools to identify noncompliance with environmental regulations. These include investigations by DEP's Environmental Strike Force, inspections, reviews of reports and monitoring data, audits, and follow-up to citizen complaints. The table below shows inspections and penalties for each of the past three fiscal years.

Type of Inspection	**2002** (10/1/01 to 9/30/02) Full Year	**2003** (10/1/02 to 9/30/03) Full Year	**2004** (10/1/03 to 9/30/04) Full Year
Cross-media inspections (Environmental Strike Force Investigations)	387	270	291
Multimedia inspections of industrial facilities	730	584	730
Asbestos inspections	938	810	771
Solid Waste facility inspections*	*	488	509
Other single media inspections of industrial facilities*	984	177	274
Waste site inspections	1210	1470	1450
Resource protection inspections	2199	1986	2530
Resource protection report reviews	64,576	67,012	74,358
Certified laboratory inspections	37	19**	59
Type of Result			
Penalties to industrial facilities	$2,100,206	$1,567,136	$2,942,320
Penalties to parties responsible for waste sites	$523,588	$2,020,413	$1,254,288
Penalties to protect natural resources	$595,252	$381,063	$1,535,400
Referrals to the Massachusetts Attorney General (MAAG)	12	25	40
MAAG settled cases, civil and criminal	23	19	20
MAAG penalties, civil and criminal	$2,133,300	$6,993,125***	$1,456,250
Referrals to US EPA and others (municipalities, district attorneys)	12	0	1
Waste Site Cleanup cost recovery revenues	$1,356,329 (7/1/01-6/30/02)	$561,241 (7/1/02-6/30/03)	$1,233,625 (7/1/03-6/30/04)

* As of the FFY 2003 Mid-year report, DEP has begun reporting Solid Waste facility inspections as a separate category. Formerly, solid waste facility inspections were included in "Other single media inspections."
**This number reflects a staffing shortage at WES during the first half of calendar year 2003. In July 2003 a staff member received certification to conduct laboratory inspections.
***This number is unusually high because of a single $5,900,000 penalty assessed to the Waters Corp. in July 2003.

06/01/2006

Accrued Expenditures 10/1/03 Through 9/30/2004

	FEDERAL BUDGET FFY2004	ACCRUED EXPENDITURES
PERSONNEL	$ 5,969,070	$ 5,403,694
FRINGE BENEFITS (@23%/27%)	1,434,522	1,293,830
TRAVEL	69,032	82,299
EQUIPMENT	29,762	41,142
SUPPLIES	128,359	63,739
CONTRACTUAL	2,848,712	1,237,048
CONSTRUCTION	0	0
OTHER	255,183	155,426
TOTAL DIRECT	**10,734,640**	**8,277,178**
INDIRECT CHARGES (@32.76 of Federal Salary Base+Fringe) (@20.64 of State Match Salaries)	3,516,594	3,241,238
TOTAL EXPENDITURES	**$14,251,234**	**11,518,416**

The major portion of the under spending is in the 319 and 104(b)(3) programs. These programs include several multi-year projects.